



# SEQUENCE LISTING

<110> ANDERSEN, Peter  
NIELSEN, Rikke  
OETTINGER, Thomas  
RASMUSSEN, Peter Birk  
ROSENKRANDS, Ida  
WELDINGH, Karin  
FLORIO, Walter

<120> NUCLEIC ACIDS FRAGMENTS AND POLYPEPTIDE FRAGMENTS  
DERIVED FROM M. TUBERCULOSIS

<130> 670001-2002.1A

<140> 10/620,246  
<141> 2003-07-15

<150> 09/050,739  
<151> 1998-03-30

<150> 0376/97  
<151> 1997-04-02

<150> 1277/97  
<151> 1997-11-10

<150> 60/044,624  
<151> 1997-04-18

<150> 60/070,488  
<151> 1998-01-05

<150> 10/138,473  
<151> 2002-05-02

<150> 09/791,171  
<151> 2001-02-20

<150> 09/415,884  
<151> 1999-10-08

<150> 60/116,673  
<151> 1999-01-21

<150> 1281/98  
<151> 1998-10-08

<160> 173

<170> PatentIn Ver. 2.0

<210> 1  
<211> 381  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 1  
ggccgcgcggt acctatgtgg ccgccgatgc tgcggacgcg tcgacctata ccgggttctg 60  
atcgaaccct gctgaccgag aggacttggt atgtcgcaaa tcatgtacaa ctaccccgcg 120  
atgttgggtc acgccgggga tatggccgga tatgccggca cgctgcagag cttgggtgcc 180  
gagatcgccg tggagcaggc cgcgttcgag agtgcgtggc agggcgatac cgggatcacg 240  
tatcaggcgt ggcaggcaca gtggaaccag gccatggaag atttggtgcg ggcctatcat 300  
gcgatgtcca gcacccatga agccaacacc atggcgatga tggcccgcga caccgccgaa 360  
gccgccaaat ggggcggcta g 381

<210> 2  
<211> 96  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 2  
Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly  
1 5 10 15  
Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile  
20 25 30  
Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly  
35 40 45  
Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp  
50 55 60  
Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr  
65 70 75 80  
Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly  
85 90 95

<210> 3  
<211> 467  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 3  
gggtagccgg accacggctg ggcaaagatg tgcaggccgc catcaaggcg gtcaaggccg 60  
gcgacggcgt cataaaccgg gacggcacct tgttggcggg cccgcgcgtg ctgacgcccg 120  
acgagtacaa ctcccggctg gtggccgccc acccgagtc caccgcggcg ttgcccgcg 180  
gcgccgggct ggtcgttctg gatggcaccg tcttgcccga actcgaagcc gagggctggg 240  
ccaaagatcg catccgcgaa ctgcaagagc tgcgtaagtc gaccgggctg gacgtttccg 300  
accgcatccg ggtggtgatg tccgtgcctg cggaaacgcga agactgggcg cgcacccatc 360  
gcgacctcat tgccggagaa atcttggcta ccgacttcga attcgccgac ctcgccgatg 420  
gtgtggccat cggcgacggc gtgcgggtaa gcacgaaaa gacctga 467

<210> 4  
<211> 108  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 4

Met Ala Ala Asp Pro Glu Ser Thr Ala Ala Leu Pro Asp Gly Ala Gly  
1 5 10 15  
Leu Val Val Leu Asp Gly Thr Val Thr Ala Glu Leu Glu Ala Glu Gly  
20 25 30  
Trp Ala Lys Asp Arg Ile Arg Glu Leu Gln Glu Leu Arg Lys Ser Thr  
35 40 45  
Gly Leu Asp Val Ser Asp Arg Ile Arg Val Val Met Ser Val Pro Ala  
50 55 60  
Glu Arg Glu Asp Trp Ala Arg Thr His Arg Asp Leu Ile Ala Gly Glu  
65 70 75 80  
Ile Leu Ala Thr Asp Phe Glu Phe Ala Asp Leu Ala Asp Gly Val Ala  
85 90 95  
Ile Gly Asp Gly Val Arg Val Ser Ile Glu Lys Thr  
100 105

<210> 5

<211> 889

<212> DNA

<213> Mycobacterium tuberculosis

<400> 5

cgggtctgca cggatccggg ccgggcaggg caatcgagcc tgggatccgc tgggggtgcgc 60  
acatcgcgga cccgtgcgcg gtacgggtcga gacagcggca cgagaaaagta gtaagggcga 120  
taataggcgg taaagagtag cgggaagccg gccgaacgac tcggtcagac aacgccacag 180  
cggccagtga ggagcagcgg gtgacggaca tgaacccgga tattgagaag gaccagacct 240  
ccgatgaagt cacggtagag acgacctccg tcttccgcgc agacttcctc agcgagctgg 300  
acgtcctcgc gcaagcgggt acggagagcg cggctctccg ggtggaaggg ctcccgccgg 360  
gctcggcggt gctggtagtc aaacgaggcc ccaacgcccg gtcccggttc ctactcgacc 420  
aagccatcac gtcggctggt cggcatcccg acagcgacat atttctcgac gacgtgaccg 480  
tgagccgctc ccatgctgaa ttccggttgg aaaacaacga attcaatgtc gtcgatgtcg 540  
ggagtctcaa cggcacctac gtcaaccgcg agcccgtgga ttcggcgggtg ctggcgaacg 600  
gcgacgaggt ccagatcggc aagttccggt tgggtgttctt gaccggaccc aagcaaggcg 660  
aggatgacgg gagtaccggg ggcccgtgag cgcacccgat agccccgcgc tggccgggat 720  
gtcgatcggg gcggtcctcg acctgctacg accggatttt cctgatgtca ccactctcaa 780  
gattcgattc ttggaggctg agggctctgg gacgccccgg cgggcctcat cggggtatcg 840  
gcggttcacc gcatacgact gcgcacggct gcgattcatt ctcaactgcc 889

<210> 6

<211> 162

<212> PRT

<213> Mycobacterium tuberculosis

<400> 6

Met Thr Asp Met Asn Pro Asp Ile Glu Lys Asp Gln Thr Ser Asp Glu  
1 5 10 15  
Val Thr Val Glu Thr Thr Ser Val Phe Arg Ala Asp Phe Leu Ser Glu  
20 25 30

Leu Asp Ala Pro Ala Gln Ala Gly Thr Glu Ser Ala Val Ser Gly Val  
           35                          40                          45  
 Glu Gly Leu Pro Pro Gly Ser Ala Leu Leu Val Val Lys Arg Gly Pro  
           50                          55                          60  
 Asn Ala Gly Ser Arg Phe Leu Leu Asp Gln Ala Ile Thr Ser Ala Gly  
           65                          70                          75                          80  
 Arg His Pro Asp Ser Asp Ile Phe Leu Asp Asp Val Thr Val Ser Arg  
                           85                          90                          95  
 Arg His Ala Glu Phe Arg Leu Glu Asn Asn Glu Phe Asn Val Val Asp  
                           100                          105                          110  
 Val Gly Ser Leu Asn Gly Thr Tyr Val Asn Arg Glu Pro Val Asp Ser  
           115                          120                          125  
 Ala Val Leu Ala Asn Gly Asp Glu Val Gln Ile Gly Lys Phe Arg Leu  
           130                          135                          140  
 Val Phe Leu Thr Gly Pro Lys Gln Gly Glu Asp Asp Gly Ser Thr Gly  
           145                          150                          155                          160  
 Gly Pro

<210> 7  
 <211> 898  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 7  
 tcgactccgg cgccaccggg caggatcacg gtgtcgacgg ggtcgccggg gaatcccacg 60  
 ataaccactc ttcgcgccat gaatgccagt gttggccagg cgctggcctg gcgtccacgc 120  
 cacacaccgc acagattagg acacgccggc ggcgagccc tgcccgaag accgtgcacc 180  
 ggtcttgga gactgtgccc atggcacaga taaccctgcg aggaaacgcg atcaataccg 240  
 tcggtgagct acctgctgtc ggatccccgg cccggcctt caccctgacc gggggcgatc 300  
 tgggggtgat cagcagcgac cagttccggg gtaagtccgt gttgctgaac atctttccat 360  
 ccgtggacac accggtgtgc gcgacgagtg tgcgaacctt cgacgagcgt gcggcggcaa 420  
 gtggcgctac cgtgctgtgt gtctcgaagg atctgccgtt cgcccagaag cgcttctgcg 480  
 gcgccgaggg caccgaaaac gtcattgccc cgtcggcatt ccgggacagc ttcggcgagg 540  
 attacggcgt gaccatcgcc gacgggcca tggccgggct gctcgcccgc gcaatcgtgg 600  
 tgatcggcgc ggacggcaac gtcgcctaca cggaattggt gccggaaatc gcgcaagaac 660  
 ccaactacga agcggcgctg gccgcgctgg gcgcctaggc ttccacaagc cccgcgcgtt 720  
 cggcgagcag cgacgattt cgagcgctgc tcccgaagc cgctcggtg gtcttggtgg 780  
 ggcggttaata caggtgcagg tcgtgctccc acgtgaaggc gatggcaccg tggatctgaa 840  
 gagcggagcc ggcgcataac acaaagggtt ccgcggtctg cgcttcgcc agcggcgc 898

<210> 8  
 <211> 165  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 8  
 Met Ala Gln Ile Thr Leu Arg Gly Asn Ala Ile Asn Thr Val Gly Glu

1	5	10	15
Leu Pro Ala Val Gly Ser Pro Ala Pro Ala Phe Thr Leu Thr Gly Gly	20	25	30
Asp Leu Gly Val Ile Ser Ser Asp Gln Phe Arg Gly Lys Ser Val Leu	35	40	45
Leu Asn Ile Phe Pro Ser Val Asp Thr Pro Val Cys Ala Thr Ser Val	50	55	60
Arg Thr Phe Asp Glu Arg Ala Ala Ala Ser Gly Ala Thr Val Leu Cys	65	70	75
Val Ser Lys Asp Leu Pro Phe Ala Gln Lys Arg Phe Cys Gly Ala Glu	85	90	95
Gly Thr Glu Asn Val Met Pro Ala Ser Ala Phe Arg Asp Ser Phe Gly	100	105	110
Glu Asp Tyr Gly Val Thr Ile Ala Asp Gly Pro Met Ala Gly Leu Leu	115	120	125
Ala Arg Ala Ile Val Val Ile Gly Ala Asp Gly Asn Val Ala Tyr Thr	130	135	140
Glu Leu Val Pro Glu Ile Ala Gln Glu Pro Asn Tyr Glu Ala Ala Leu	145	150	155
Ala Ala Leu Gly Ala	165		

<210> 9

<211> 1054

<212> DNA

<213> Mycobacterium tuberculosis

<400> 9

ataatcagct	caccgttggg	accgacctcg	accaggggtc	ctttgtgact	gccgggcttg	60
acgcggacga	ccacagagtc	ggtcacgcgc	taaggctacc	gttctgacct	ggggctgcgt	120
gggcgccgac	gacgtgaggc	acgtcatgtc	tcagcggccc	accgccacct	cggtcgccgg	180
cagtatgtca	gcatgtgcag	atgactccac	gcagccttgt	tcgcatcggt	gggtgcgtgg	240
ttgcgacgac	cttggcgctg	gtgagcgac	ccgcggcgcg	tcgtgccgcg	catgcggatc	300
cgtgttcgga	catcgcggtc	gttttcgctc	gcggcacgca	tcaggcttct	ggctctggcg	360
acgtcggtag	ggcggtcgtc	gactcgctta	cctcgcaagt	tggcgggcgg	tcgattgggg	420
tctacgcggt	gaactaccca	gcaagcgacg	actaccgcgc	gagcgcgtca	aacggttccg	480
atgatgcgag	cgccacatc	cagcgcaccg	tcgccagctg	cccgaacacc	aggattgtgc	540
ttgggtggcta	ttcgcagggg	gcgacgggtc	tcgatttgtc	cacctcggcg	atgccgcccc	600
cgggtggcaga	tcattgtcgcc	gctgtcgccc	ttttcggcga	gccatccagt	ggtttctcca	660
gcatgttgtg	gggcggcggg	tcgttgccga	caatcgggtc	gctgtatagc	tctaagacca	720
taaaacttgtg	tgctcccgc	gatccaatat	gcaccggagg	cggcaatatt	atggcgcatg	780
tttcgtatgt	tcagtcgggg	atgacaagcc	aggcggcgac	attcgcggcg	aacaggctcg	840
atcacgccgg	atgatcaaag	actgttgtcc	ctataaccgt	ggggctgtag	tcgatgtaca	900
ccggctggaa	tctgaagggc	aagaaccgcg	tattcatcag	gccggatgaa	atgacggctg	960
ggcggtaatc	gtttgtgttg	aacgcgtaga	gccgatcacc	gccggggctg	gtgtagacct	1020
caatgtttgt	gttcgccggc	agggttccgg	atcc			1054

<210> 10  
 <211> 217  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 10  
 Met Thr Pro Arg Ser Leu Val Arg Ile Val Gly Val Val Val Ala Thr  
   1                  5                  10                  15  
 Thr Leu Ala Leu Val Ser Ala Pro Ala Gly Gly Arg Ala Ala His Ala  
                   20                  25                  30  
 Asp Pro Cys Ser Asp Ile Ala Val Val Phe Ala Arg Gly Thr His Gln  
           35                  40                  45  
 Ala Ser Gly Leu Gly Asp Val Gly Glu Ala Phe Val Asp Ser Leu Thr  
   50                  55                  60  
 Ser Gln Val Gly Gly Arg Ser Ile Gly Val Tyr Ala Val Asn Tyr Pro  
   65                  70                  75                  80  
 Ala Ser Asp Asp Tyr Arg Ala Ser Ala Ser Asn Gly Ser Asp Asp Ala  
                   85                  90                  95  
 Ser Ala His Ile Gln Arg Thr Val Ala Ser Cys Pro Asn Thr Arg Ile  
           100                  105                  110  
 Val Leu Gly Gly Tyr Ser Gln Gly Ala Thr Val Ile Asp Leu Ser Thr  
   115                  120                  125  
 Ser Ala Met Pro Pro Ala Val Ala Asp His Val Ala Ala Val Ala Leu  
   130                  135                  140  
 Phe Gly Glu Pro Ser Ser Gly Phe Ser Ser Met Leu Trp Gly Gly Gly  
  145                  150                  155                  160  
 Ser Leu Pro Thr Ile Gly Pro Leu Tyr Ser Ser Lys Thr Ile Asn Leu  
           165                  170                  175  
 Cys Ala Pro Asp Asp Pro Ile Cys Thr Gly Gly Gly Asn Ile Met Ala  
           180                  185                  190  
 His Val Ser Tyr Val Gln Ser Gly Met Thr Ser Gln Ala Ala Thr Phe  
   195                  200                  205  
 Ala Ala Asn Arg Leu Asp His Ala Gly  
   210                  215

<210> 11  
 <211> 949  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 11  
 agccgctcgc gtgggggtcaa ccggggtttcc acctgctcac tcattttgcc gcctttctgt 60  
 gtccgggccg aggcttgccg tcaataactc ggtcaagttc cttcacagac tgccatcact 120

```

ggccccgtcgg cgggctcgtt gcgggtgcgc cgcgtgcggg tttgtgttcc gggcaccggg 180
tgggggccccg cccgggcgta atggcagact gtgattccgt gactaacagc ccccttgcca 240
ccgctaccgc cagctgcac actaacgcg gcgacatcaa gatcgccctg ttcggaaacc 300
atgcgccccaa gaccgtcgcc aattttgtgg gccttgcgca gggcaccaag gactattcga 360
cccaaaacgc atcaggtggc ccgtccggcc cgttctacga cggcgcggtc tttcaccggg 420
tgatccaggg cttcatgac caggggtggc atccaaccgg gacgggtcgc ggcggaccgc 480
gctacaagtt cgccgacgag ttccacccc agctgcaatt cgacaagccc tatctgctcg 540
cgatggccaa cgccggtccg ggcaccaacg gctcacagtt tttcatcacc gtcggcaaga 600
ctccgcacct gaaccggcgc cacaccattt tcggtgaagt gatcgacgcg gattcacagc 660
gggttggtgga ggcatctcc aagacggcca ccgacggcaa cgatcggccg acggaccgcg 720
tggtgatcga gtcgatcacc atctcctgac ccgaagctac gtcggctcgt cgctcgaata 780
caccttggtg acccgccagg gcacgtggcg gtacaccgac acgcccgttg ggccgttcaa 840
ccggacgccc tcacgccaag tccgctcacc tttggccgcg accggcgtaa ccggcagcgg 900
taagcgcacg gagcacctcc actgggtcgg tgccgagatc ccagcggga 949

```

<210> 12

<211> 182

<212> PRT

<213> Mycobacterium tuberculosis

<400> 12

```

Met Ala Asp Cys Asp Ser Val Thr Asn Ser Pro Leu Ala Thr Ala Thr
  1              5              10             15

Ala Thr Leu His Thr Asn Arg Gly Asp Ile Lys Ile Ala Leu Phe Gly
      20              25             30

Asn His Ala Pro Lys Thr Val Ala Asn Phe Val Gly Leu Ala Gln Gly
      35              40             45

Thr Lys Asp Tyr Ser Thr Gln Asn Ala Ser Gly Gly Pro Ser Gly Pro
      50              55             60

Phe Tyr Asp Gly Ala Val Phe His Arg Val Ile Gln Gly Phe Met Ile
      65              70             75             80

Gln Gly Gly Asp Pro Thr Gly Thr Gly Arg Gly Gly Pro Gly Tyr Lys
      85              90             95

Phe Ala Asp Glu Phe His Pro Glu Leu Gln Phe Asp Lys Pro Tyr Leu
      100             105            110

Leu Ala Met Ala Asn Ala Gly Pro Gly Thr Asn Gly Ser Gln Phe Phe
      115            120            125

Ile Thr Val Gly Lys Thr Pro His Leu Asn Arg Arg His Thr Ile Phe
      130            135            140

Gly Glu Val Ile Asp Ala Glu Ser Gln Arg Val Val Glu Ala Ile Ser
      145            150            155            160

Lys Thr Ala Thr Asp Gly Asn Asp Arg Pro Thr Asp Pro Val Val Ile
      165            170            175

Glu Ser Ile Thr Ile Ser
      180

```

<210> 13  
<211> 1060  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 13  
tggaccttca cccggcgggtcc cttecgcttcg ggggcgacac ctaacatact ggtcgtcaac 60  
ctaccgcgac accgctggga ctttgtgcca ttgccggcca ctccggggccg ctgcggcctg 120  
gaaaaattgg tcgggcacgg gcggccgcgg gtcgctacca tcccactgtg aatgatttac 180  
tgaccgcgag actgctcacc atgggcgcgg ccgccgcaat gctggccgcg gtgcttctgc 240  
ttactcccat caccgttccc gccggctacc ccggtgccgt tgcaccggcc actgcagcct 300  
gccccgacgc cgaagtgggtg ttcccccgcg gccgcttcga accgcccggg attggcacgg 360  
tcggcaacgc attcgtcagc gcgctgcgct cgaagggtcaa caagaatgtc ggggtctacg 420  
cgggtgaaata cccccccgac aatcagatcg atgtgggcgc caacgacatg agcgcccaca 480  
ttcagagcat ggccaacagc tgtccgaata cccgcctggt gcccggcggg tactcgctgg 540  
gcgcggccgt caccgacgtg gtactcgcgg tgcccaccca gatgtggggc ttcaccaatc 600  
ccctgcctcc cggcagtgat gagcacatcg ccgcggtcgc gctgttcggc aatggcagtc 660  
agtgggtcgg ccccatcacc aacttcagcc ccgcctacaa cgatcggacc atcgagttgt 720  
gtcacggcga cgaccccgtc tgccaccctg ccgaccccaa cacctgggag gccaaactggc 780  
cccagcacct cgccggggcc tatgtctcgt cgggcatggt caaccaggcg gctgacttcg 840  
ttgccggaaa gctgcaatag ccacctagcc cgtgcgcgag tctttgcttc acgctttcgc 900  
taaccgacca acgcgcgcac gatggagggg tccgtggtca tatcaagaca agaagggagt 960  
aggcgatgca cgcaaaagtc ggcgactacc tcgtggtgaa gggcacaacc acggaacggc 1020  
atgatcaaca tgctgagatc atcgaggtgc gctccgcaga 1060

<210> 14  
<211> 219  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 14  
Met Gly Ala Ala Ala Ala Met Leu Ala Ala Val Leu Leu Leu Thr Pro  
1 5 10 15  
Ile Thr Val Pro Ala Gly Tyr Pro Gly Ala Val Ala Pro Ala Thr Ala  
20 25 30  
Ala Cys Pro Asp Ala Glu Val Val Phe Ala Arg Gly Arg Phe Glu Pro  
35 40 45  
Pro Gly Ile Gly Thr Val Gly Asn Ala Phe Val Ser Ala Leu Arg Ser  
50 55 60  
Lys Val Asn Lys Asn Val Gly Val Tyr Ala Val Lys Tyr Pro Ala Asp  
65 70 75 80  
Asn Gln Ile Asp Val Gly Ala Asn Asp Met Ser Ala His Ile Gln Ser  
85 90 95  
Met Ala Asn Ser Cys Pro Asn Thr Arg Leu Val Pro Gly Gly Tyr Ser  
100 105 110  
Leu Gly Ala Ala Val Thr Asp Val Val Leu Ala Val Pro Thr Gln Met  
115 120 125  
Trp Gly Phe Thr Asn Pro Leu Pro Pro Gly Ser Asp Glu His Ile Ala



130	135	140
Ala Val Ala Leu Phe Gly Asn Gly Ser Gln Trp Val Gly Pro Ile Thr		
145	150	155 160
Asn Phe Ser Pro Ala Tyr Asn Asp Arg Thr Ile Glu Leu Cys His Gly		
	165	170 175
Asp Asp Pro Val Cys His Pro Ala Asp Pro Asn Thr Trp Glu Ala Asn		
	180	185 190
Trp Pro Gln His Leu Ala Gly Ala Tyr Val Ser Ser Gly Met Val Asn		
	195	200 205
Gln Ala Ala Asp Phe Val Ala Gly Lys Leu Gln		
210	215	

<210> 15  
 <211> 1198  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 15

cagatgctgc	gcaacatggt	tctcggcgat	ccggcaggca	acaccgatcg	agtgcttgac	60
ttttccaccg	cggtgaccgg	cggactgttc	ttctcaccca	ccatcgactt	tctcgaccat	120
ccaccgcccc	taccgcaggc	ggcgacgcca	actctggcag	ccgggtcgct	atcgatcggc	180
agcttgaaaag	gaagcccccg	atgaacaatc	tctaccgcga	tttggcaccg	gtcaccgaag	240
ccgcttgggc	ggaaatcgaa	ttggaggcgg	cgcggaaggt	caagcgacac	atcgccgggc	300
gccgggtggg	cgatgtcagt	gatcccgagg	ggcccggtac	cgcggcgggc	agcaccggcc	360
ggctgatcga	tgtaaggca	ccaaccaacg	gcgtgatcgc	ccacctgcgg	gccagcaaac	420
cccttgctccg	gctacgggtt	ccgtttaccc	tgctcgcgca	cgagatcgac	gacgtggaac	480
gtggctctaa	ggactccgat	tgggaaccgg	taaaggaggc	ggccaagaag	ctggccttcg	540
tcgaggaccg	cacaatattc	gaaggctaca	gcgccgcac	aatcgaagg	atccgcagcg	600
cgagttcgaa	cccggcgctg	acgttgcccc	aggatccccg	tgaaatccct	gatgtcatct	660
cccaggcatt	gtccgaactg	cggttgcccg	gtgtggacgg	accgtattcg	gtgttgctct	720
ctgctgacgt	ctacaccaag	gttagcgaga	cttccgatca	cggctatccc	atccgtgagc	780
atctgaaccg	gctggtggac	ggggacatca	tttgggcccc	ggccatcgac	ggcgcggttcg	840
tgctgaccac	tcgaggcggc	gacttcgacc	tacagctggg	caccgacgtt	gcaatcgggt	900
acgccagcca	cgacacggac	accgagcgcc	tctacctgca	ggagacgctg	acgttccttt	960
gctacaccgc	cgaggcgctg	gtcgcgctca	gccactaagg	cacgagcgcg	agcaatagct	1020
cctatggcaa	gcggcccgcg	ggtgggtgtg	ttcggagctg	ggctggtgga	cggtgcgcag	1080
ggcctggaag	acggtgcggg	ctaggcgggc	tttgaggcag	cgtagtgctg	cgcgtttggt	1140
tttcccggcg	tcttgagacc	tttggtagta	ggcctggccc	cggctgtcgg	tcattccgg	1198

<210> 16  
 <211> 265  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 16

Met Asn Asn Leu Tyr Arg Asp Leu Ala Pro Val Thr Glu Ala Ala Trp
1 5 10 15
Ala Glu Ile Glu Leu Glu Ala Ala Arg Thr Phe Lys Arg His Ile Ala
20 25 30

Gly Arg Arg Val Val Asp Val Ser Asp Pro Gly Gly Pro Val Thr Ala  
 35 40 45  
 Ala Val Ser Thr Gly Arg Leu Ile Asp Val Lys Ala Pro Thr Asn Gly  
 50 55 60  
 Val Ile Ala His Leu Arg Ala Ser Lys Pro Leu Val Arg Leu Arg Val  
 65 70 75 80  
 Pro Phe Thr Leu Ser Arg Asn Glu Ile Asp Asp Val Glu Arg Gly Ser  
 85 90 95  
 Lys Asp Ser Asp Trp Glu Pro Val Lys Glu Ala Ala Lys Lys Leu Ala  
 100 105 110  
 Phe Val Glu Asp Arg Thr Ile Phe Glu Gly Tyr Ser Ala Ala Ser Ile  
 115 120 125  
 Glu Gly Ile Arg Ser Ala Ser Ser Asn Pro Ala Leu Thr Leu Pro Glu  
 130 135 140  
 Asp Pro Arg Glu Ile Pro Asp Val Ile Ser Gln Ala Leu Ser Glu Leu  
 145 150 155 160  
 Arg Leu Ala Gly Val Asp Gly Pro Tyr Ser Val Leu Leu Ser Ala Asp  
 165 170 175  
 Val Tyr Thr Lys Val Ser Glu Thr Ser Asp His Gly Tyr Pro Ile Arg  
 180 185 190  
 Glu His Leu Asn Arg Leu Val Asp Gly Asp Ile Ile Trp Ala Pro Ala  
 195 200 205  
 Ile Asp Gly Ala Phe Val Leu Thr Thr Arg Gly Gly Asp Phe Asp Leu  
 210 215 220  
 Gln Leu Gly Thr Asp Val Ala Ile Gly Tyr Ala Ser His Asp Thr Asp  
 225 230 235 240  
 Thr Glu Arg Leu Tyr Leu Gln Glu Thr Leu Thr Phe Leu Cys Tyr Thr  
 245 250 255  
 Ala Glu Ala Ser Val Ala Leu Ser His  
 260 265

<210> 17

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> VARIANT

<222> (1)

<223> Ala is Ala or Ser

<220>

<221> UNSURE  
<222> (13)  
<223> Xaa is unknown

<400> 17

Ala	Glu	Leu	Asp	Ala	Pro	Ala	Gln	Ala	Gly	Thr	Glu	Xaa	Ala	Val
1				5					10					15

<210> 18

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 18

Ala	Gln	Ile	Thr	Leu	Arg	Gly	Asn	Ala	Ile	Asn	Thr	Val	Gly	Glu
1				5					10					15

<210> 19

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (3)

<223> Xaa is unknown

<400> 19

Asp	Pro	Xaa	Ser	Asp	Ile	Ala	Val	Val	Phe	Ala	Arg	Gly	Thr	His
1				5					10					15

<210> 20

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 20

Thr	Asn	Ser	Pro	Leu	Ala	Thr	Ala	Thr	Ala	Thr	Leu	His	Thr	Asn
1				5					10					15

<210> 21

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> UNSURE

<222> (2)

<223> Xaa is unknown

<400> 21

Ala	Xaa	Pro	Asp	Ala	Glu	Val	Val	Phe	Ala	Arg	Gly	Arg	Phe	Glu
1				5					10					15

<210> 22  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> UNSURE  
<222> (1)  
<223> Xaa is unknown

<220>  
<221> VARIANT  
<222> (2)  
<223> Ile is Ile or Val

<220>  
<221> VARIANT  
<222> (10)  
<223> Val is Val or Thr

<220>  
<221> VARIANT  
<222> (11)  
<223> Val is Val or Phe

<220>  
<221> VARIANT  
<222> (14)  
<223> Asp is Asp or Gln

<400> 22  
Xaa Ile Gln Lys Ser Leu Glu Leu Ile Val Val Thr Ala Asp Glu  
1 5 10 15

<210> 23  
<211> 19  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 23  
Met Asn Asn Leu Tyr Arg Asp Leu Ala Pro Val Thr Glu Ala Ala Trp  
1 5 10 15

Ala Glu Ile

<210> 24  
<211> 34  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 24  
cccggctcga gaacctstac cgcgacctsg csc

<210> 25  
 <211> 37  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 25  
 gggccggatc cgasgcs gcg tccttsacs gytgcca 37  
  
 <210> 26  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 26  
 ggaagcccca tatgaacaat ctctaccg 28  
  
 <210> 27  
 <211> 32  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 27  
 cgcgctcagc ccttagtgac tgagcgcgac cg 32  
  
 <210> 28  
 <211> 24  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 28  
 ctcgaaattcg ccgggtgcac acag 24  
  
 <210> 29  
 <211> 25  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 29  
 ctcgaaattcg ccccatatcg agaac 25  
  
 <210> 30  
 <211> 15  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 30  
 gtgtatctgc tggac 15  
  
 <210> 31  
 <211> 15  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 31  
 ccgactggct ggccg 15

<210> 32	
<211> 24	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 32	
gaggaattcg cttagcggat cgca	24
<210> 33	
<211> 15	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 33	
cccacattcc gttgg	15
<210> 34	
<211> 15	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 34	
gtccagcaga tacac	15
<210> 35	
<211> 27	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 35	
gtacgagaat tcatgtcgca aatcatg	27
<210> 36	
<211> 27	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 36	
gtacgagaat tcgagcttgg ggtgccg	27
<210> 37	
<211> 28	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 37	
cgattccaag cttgtggccg ccgacccg	28
<210> 38	
<211> 30	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 38	
cgttagggat cctcatcgcc atgggtgttgg	30
<210> 39	

<211> 26  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 39  
cgttagggat ccggttccac tgtgcc 26

<210> 40  
<211> 28  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 40  
cgttagggat cctcaggtct tttcgatg 28

<210> 41  
<211> 952  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 41  
gaattcgccg ggtgcacaca gccttacacg acggaggtgg acacatgaag ggtcggtcgg 60  
cgctgctgcg ggcgctctgg attgccgcac tgtcattcgg gttgggcggg gtcgcggtag 120  
ccgcggaacc caccgccaag gccgccccat acgagaacct gatggtgccg tcgccctcga 180  
tgggccggga catcccggtg gccttcctag ccggtgggcc gcacgcggtg tatctgctgg 240  
acgccttcaa cgccggcccc gatgtcagta actgggtcac cgcgggtaac gcgatgaaca 300  
cgttggcggg caaggggatt tcggtggtgg caccggccgg tggcggtac agcatgtaca 360  
ccaactggga gcaggatggc agcaagcagt gggacacctt cttgtccgct gagctgcccg 420  
actggctggc cgctaaccgg ggcttggccc ccggtggcca tgcggccggt ggcgccgctc 480  
agggcgggta cggggcgatg gcgctggcgg ccttccacct cgaccgcttc ggcttcgctg 540  
gctcgatgtc gggctttttg taccgctcga acaccaccac caacggtgcy atcgcgccgg 600  
gcatgcagca attcggcggg gtggacacca acggaatgtg gggagcacca cagctgggtc 660  
ggtggaagtg gcacgacctg tgggtgcatg ccagcctgct ggcgcaaac aacaccggg 720  
tgtgggtgtg gagcccgacc aaccggggag ccagcgatcc cgccgccatg atcgccaaa 780  
ccgccgaggc gatgggtaac agccgcatgt tctacaacca gtatcgagc gtcggcgggc 840  
acaacggaca cttcgacttc ccagccagcg gtgacaacgg ctggggctcg tgggcgcccc 900  
agctgggcgc tatgtcgggc gatatcgctg gtgcgatccg ctaagcgaat tc 952

<210> 42  
<211> 299  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 42  
Met Lys Gly Arg Ser Ala Leu Leu Arg Ala Leu Trp Ile Ala Ala Leu  
1 5 10 15  
Ser Phe Gly Leu Gly Gly Val Ala Val Ala Ala Glu Pro Thr Ala Lys  
20 25 30  
Ala Ala Pro Tyr Glu Asn Leu Met Val Pro Ser Pro Ser Met Gly Arg  
35 40 45  
Asp Ile Pro Val Ala Phe Leu Ala Gly Gly Pro His Ala Val Tyr Leu  
50 55 60  
Leu Asp Ala Phe Asn Ala Gly Pro Asp Val Ser Asn Trp Val Thr Ala

65	70	75	80
Gly Asn Ala Met Asn Thr Leu Ala Gly Lys Gly Ile Ser Val Val Ala	85	90	95
Pro Ala Gly Gly Ala Tyr Ser Met Tyr Thr Asn Trp Glu Gln Asp Gly	100	105	110
Ser Lys Gln Trp Asp Thr Phe Leu Ser Ala Glu Leu Pro Asp Trp Leu	115	120	125
Ala Ala Asn Arg Gly Leu Ala Pro Gly Gly His Ala Ala Val Gly Ala	130	135	140
Ala Gln Gly Gly Tyr Gly Ala Met Ala Leu Ala Ala Phe His Pro Asp	145	150	155
Arg Phe Gly Phe Ala Gly Ser Met Ser Gly Phe Leu Tyr Pro Ser Asn	165	170	175
Thr Thr Thr Asn Gly Ala Ile Ala Ala Gly Met Gln Gln Phe Gly Gly	180	185	190
Val Asp Thr Asn Gly Met Trp Gly Ala Pro Gln Leu Gly Arg Trp Lys	195	200	205
Trp His Asp Pro Trp Val His Ala Ser Leu Leu Ala Gln Asn Asn Thr	210	215	220
Arg Val Trp Val Trp Ser Pro Thr Asn Pro Gly Ala Ser Asp Pro Ala	225	230	235
Ala Met Ile Gly Gln Thr Ala Glu Ala Met Gly Asn Ser Arg Met Phe	245	250	255
Tyr Asn Gln Tyr Arg Ser Val Gly Gly His Asn Gly His Phe Asp Phe	260	265	270
Pro Ala Ser Gly Asp Asn Gly Trp Gly Ser Trp Ala Pro Gln Leu Gly	275	280	285
Ala Met Ser Gly Asp Ile Val Gly Ala Ile Arg	290	295	

<210> 43  
 <211> 27  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 43  
 gcaacacccg ggatgtcgca aatcatg

27

<210> 44  
 <211> 27  
 <212> DNA  
 <213> Mycobacterium tuberculosis



<400> 44  
gtaacacccg ggggtggccgc cgacccg 27

<210> 45  
<211> 37  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 45  
ctactaagct tggatcccta gccgccccat ttggcgg 37

<210> 46  
<211> 38  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 46  
ctactaagct tccatgggtca ggtcttttcg atgcttac 38

<210> 47  
<211> 450  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 47  
gtgccgcgct ccccaggggt cttatgggtc gatatacctg agtttgatgg aagtccgatg 60  
accagcagtc agcatacggc atggccgaaa agagtggggg gatgatggcc gaggatgttc 120  
gcgccgagat cgtggccagc gttctcgaag tcgttggtcaa cgaaggcgat cagatcgaca 180  
agggcgacgt cgtgggtgctg ctggagtcga tgaagatgga gatccccgtc ctggccgaag 240  
ctgccggaac ggtcagcaag gtggcgggtat cgggtgggcca tgtcattcag gccggcgacc 300  
ttatcgcggt gatcagctag tcgttgatag tcatctatgt ccacactcgg tgatctgctc 360  
gccgaacaca cggtgctgcc gggcagcgcg gtggaccacc tgcattgcggg ggtcggggag 420  
tggcagctcc ttgccgactt gtcgtttgcc 450

<210> 48  
<211> 71  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 48  
Met Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val  
1 5 10 15  
Val Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu  
20 25 30  
Leu Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly  
35 40 45  
Thr Val Ser Lys Val Ala Val Ser Val Gly Asp Val Ile Gln Ala Gly  
50 55 60  
Asp Leu Ile Ala Val Ile Ser  
65 70

<210> 49  
 <211> 750  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 49  
 gggtagcccat cgatggggttg cggttcggca ccgaggtgct aacgcacttg ctgacacact 60  
 gctagtgcgaa aacgaggcta gtcgcaacgt cgatcacacg agaggactga ccatgacaac 120  
 ttcacccgac ccgtatgccg cgctgcccga gctgccgtcc ttcagcctga cgtcaacctc 180  
 gatcaccgat gggcagccgc tggctacacc ccaggtcagc gggatcatgg gtgcgggagg 240  
 ggcggtatgcc agtccgcagc tgagggtggc gggatttccc agcgagaccc gcagcttcgc 300  
 ggtaaccgtc tacgacctg atgccccac cctgtccggg ttctggcact gggcggtggc 360  
 caacctgcct gccaacgtca ccgagttgcc cgagggtgct ggcatggcc gcgaactgcc 420  
 gggcggggca ctgacattgg tcaacgacgc cggtatgcgc cggtatgtgg gtgcggcgcc 480  
 gcctcccggg catggggtgc atcgctacta cgtcgcggta cacgcggtga aggtcgaaaa 540  
 gctcgacctc cccgaggacg cgagtcctgc atatctggga ttcaacctgt tccagcacgc 600  
 gattgcacga gcggtcatct tcggcaccta cgagcagcgt tagcgcttta gctgggttgc 660  
 cgacgtcttg ccgagccgac cgcttcgtgc agcgagccga acccgccgct atgcagcctg 720  
 cgggcaatgc cttcatggat gtccttgagg 750

<210> 50  
 <211> 176  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 50  
 Met Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser  
 1 5 10 15  
 Phe Ser Leu Thr Ser Thr Ser Ile Thr Asp Gly Gln Pro Leu Ala Thr  
 20 25 30  
 Pro Gln Val Ser Gly Ile Met Gly Ala Gly Gly Ala Asp Ala Ser Pro  
 35 40 45  
 Gln Leu Arg Trp Ser Gly Phe Pro Ser Glu Thr Arg Ser Phe Ala Val  
 50 55 60  
 Thr Val Tyr Asp Pro Asp Ala Pro Thr Leu Ser Gly Phe Trp His Trp  
 65 70 75 80  
 Ala Val Ala Asn Leu Pro Ala Asn Val Thr Glu Leu Pro Glu Gly Val  
 85 90 95  
 Gly Asp Gly Arg Glu Leu Pro Gly Gly Ala Leu Thr Leu Val Asn Asp  
 100 105 110  
 Ala Gly Met Arg Arg Tyr Val Gly Ala Ala Pro Pro Pro Gly His Gly  
 115 120 125  
 Val His Arg Tyr Tyr Val Ala Val His Ala Val Lys Val Glu Lys Leu  
 130 135 140  
 Asp Leu Pro Glu Asp Ala Ser Pro Ala Tyr Leu Gly Phe Asn Leu Phe  
 145 150 155 160  
 Gln His Ala Ile Ala Arg Ala Val Ile Phe Gly Thr Tyr Glu Gln Arg

<210> 51  
 <211> 800  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 51  
 tcatgagggt catcggggtg atcccacgcc cgcagccgca ttcggggccgc tggcgagccg 60  
 gtgccgcacg ccgcctcacc agcctggtgg ccgccgcctt tgcggcggcc acactgttgc 120  
 ttacccccgc gctggcacca ccggcatcgg cgggctgccc ggatgccgag gtggtgttcg 180  
 cccgcggaac cggcgaacca cctggcctcg gtcgggtagg ccaagctttc gtcagttcat 240  
 tgcgccagca gaccaacaag agcatcggga catacggagt caactaccgc gccaacggtg 300  
 atttcttggc cgccgctgac ggcgcgaaac acgccagcga ccacattcag cagatggcca 360  
 gcgcgtgccg ggccacgagg ttggtgctcg gcggctactc ccagggtgcg gccgtgatcg 420  
 acatcgtcac cgccgcacca ctgcccggcc tcgggttcac gcagccgttg ccgcccgag 480  
 cggacgatca catcgcccgcg atcgccctgt tcgggaatcc ctccggccgc gctggcgggc 540  
 tgatgagcgc cctgaccctt caattcgggt ccaagaccat caacctctgc aacaacggcg 600  
 acccgatttg ttcggacggc aaccggtggc gagcgcacct aggctacgtg cccgggatga 660  
 ccaaccaggc ggcgcgtttc gtcgcgagca ggatctaacg cgagccgccc catagattcc 720  
 ggctaagcaa cggctgcgcc gccgccggc cagagtgac cgccgcccgc tggcacaccg 780  
 cttaccacgg ccttatgctg 800

<210> 52  
 <211> 226  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 52  
 Met Ile Pro Arg Pro Gln Pro His Ser Gly Arg Trp Arg Ala Gly Ala  
 1 5 10 15  
 Ala Arg Arg Leu Thr Ser Leu Val Ala Ala Ala Phe Ala Ala Ala Thr  
 20 25 30  
 Leu Leu Leu Thr Pro Ala Leu Ala Pro Pro Ala Ser Ala Gly Cys Pro  
 35 40 45  
 Asp Ala Glu Val Val Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Leu  
 50 55 60  
 Gly Arg Val Gly Gln Ala Phe Val Ser Ser Leu Arg Gln Gln Thr Asn  
 65 70 75 80  
 Lys Ser Ile Gly Thr Tyr Gly Val Asn Tyr Pro Ala Asn Gly Asp Phe  
 85 90 95  
 Leu Ala Ala Ala Asp Gly Ala Asn Asp Ala Ser Asp His Ile Gln Gln  
 100 105 110  
 Met Ala Ser Ala Cys Arg Ala Thr Arg Leu Val Leu Gly Gly Tyr Ser  
 115 120 125

Gln Gly Ala Ala Val Ile Asp Ile Val Thr Ala Ala Pro Leu Pro Gly  
 130 135 140  
 Leu Gly Phe Thr Gln Pro Leu Pro Pro Ala Ala Asp Asp His Ile Ala  
 145 150 155 160  
 Ala Ile Ala Leu Phe Gly Asn Pro Ser Gly Arg Ala Gly Gly Leu Met  
 165 170 175  
 Ser Ala Leu Thr Pro Gln Phe Gly Ser Lys Thr Ile Asn Leu Cys Asn  
 180 185 190  
 Asn Gly Asp Pro Ile Cys Ser Asp Gly Asn Arg Trp Arg Ala His Leu  
 195 200 205  
 Gly Tyr Val Pro Gly Met Thr Asn Gln Ala Ala Arg Phe Val Ala Ser  
 210 215 220  
 Arg Ile  
 225

<210> 53  
 <211> 700  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 53  
 ctaggaaaagc ctttcctgag taagtattgc cttcgttgca taccgccctt tacctgcgtt 60  
 aatctgcatt ttatgacaga atacgaagg cctaagacaa aattccacgc gttaatgcag 120  
 gaacagattc ataacgaatt cacagcggca caacaatatg tcgcgatcgc ggtttatttc 180  
 gacagcgaag acctgccgca gttggcgaag cattttttaca gccaagcggc cgaggaacga 240  
 aaccatgcaa tgatgctcgt gcaacacctg ctcgaccgcg accttcgtgt cgaaattccc 300  
 ggcgtagaca cggcgcgaaa ccagttcgac agaccccgcg aggcactggc gctggcgctc 360  
 gatcaggaac gcacagtcac cgaccaggtc ggtcggctga cagcgggtggc ccgcgacgag 420  
 ggcgatttcc tcggcgagca gttcatgcag tggttcttgc aggaacagat cgaagaggtg 480  
 gccttgatgg caaccctggt gcgggttgcc gatcggggccg gggccaacct gttcgagcta 540  
 gagaacttcg tcgcacgtga agtggatgtg gcgccggccg catcaggcgc cccgcacgct 600  
 gccggggggc gcctctagat ccctggcggg gatcagcgag tgggtcccgtt cgcccggccc 660  
 tcttcagacc aggccttggt gcggccgggg tggtgagtac 700

<210> 54  
 <211> 181  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 54  
 Met Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln  
 1 5 10 15  
 Glu Gln Ile His Asn Glu Phe Thr Ala Ala Gln Gln Tyr Val Ala Ile  
 20 25 30  
 Ala Val Tyr Phe Asp Ser Glu Asp Leu Pro Gln Leu Ala Lys His Phe  
 35 40 45  
 Tyr Ser Gln Ala Val Glu Glu Arg Asn His Ala Met Met Leu Val Gln

50	55	60
His Leu Leu Asp Arg Asp Leu Arg Val Glu Ile Pro Gly Val Asp Thr		
65	70	75 80
Val Arg Asn Gln Phe Asp Arg Pro Arg Glu Ala Leu Ala Leu Ala Leu		
	85	90 95
Asp Gln Glu Arg Thr Val Thr Asp Gln Val Gly Arg Leu Thr Ala Val		
	100	105 110
Ala Arg Asp Glu Gly Asp Phe Leu Gly Glu Gln Phe Met Gln Trp Phe		
	115	120 125
Leu Gln Glu Gln Ile Glu Glu Val Ala Leu Met Ala Thr Leu Val Arg		
	130	135 140
Val Ala Asp Arg Ala Gly Ala Asn Leu Phe Glu Leu Glu Asn Phe Val		
145	150	155 160
Ala Arg Glu Val Asp Val Ala Pro Ala Ala Ser Gly Ala Pro His Ala		
	165	170 175
Ala Gly Gly Arg Leu		
	180	

<210> 55  
 <211> 950  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 55  
 tgggctcggc actggctctc ccacgggtggc gcgctgattt ctccccacgg taggcgttgc 60  
 gacgcatggt cttcaccgtc tatccacagc taccgacatt tgctccggct ggatcgcggg 120  
 taaaattccg tcgtgaacaa tcgacccatc cgcttgctga catccggcag ggctgggttg 180  
 ggtgcgggcg cattgatcac cgccgtcgtc ctgctcatcg ccttggggcg tgtttgacc 240  
 ccggttgctt tcgccgatgg atgcccggac gccgaagtca cgttcgcccg cggcaccggc 300  
 gagccgcccc gaatcgggcg cgttggccag gcgttcgtcg actcgctgcg ccagcagact 360  
 ggcattggaga tcggagtata cccggtgaat tacgccgcca gccgcctaca gctgcacggg 420  
 ggagacggcg ccaacgacgc catatcgac attaatgcca tggcctcgtc atgcccgaac 480  
 accaagctgg tcttggggcg ctattcgag ggcgcaaccg tgatcgatat cgtggccggg 540  
 gttccgttgg gcagcatcag ctttggcagt ccgctacctg cggcatacgc agacaacgtc 600  
 gcagcggtcg cggctcttcg caatccgtcc aaccgcgccg gcgcatcgct gtcgagcctg 660  
 agcccgtat tcggttccaa ggcgattgac ctgtgcaatc ccaccgatcc gatctgccat 720  
 gtgggccccg gcaacgaatt cagcggacac atcgacggct acataccac ctacaccacc 780  
 caggcggcta gtttcgtcgt gcagaggctc cgcgccgggt cggtgccaca tctgcctgga 840  
 tccgtcccg agctgcccgg gtctgtcctt cagatgcccg gcactgccgc accggctccc 900  
 gaatcgctgc acggtcgctg acgctttgtc agtaagccca taaaatcgcg 950

<210> 56  
 <211> 262  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 56  
 Met Asn Asn Arg Pro Ile Arg Leu Leu Thr Ser Gly Arg Ala Gly Leu

1	5	10	15
Gly Ala Gly Ala Leu Ile Thr Ala Val Val Leu Leu Ile Ala Leu Gly	20	25	30
Ala Val Trp Thr Pro Val Ala Phe Ala Asp Gly Cys Pro Asp Ala Glu	35	40	45
Val Thr Phe Ala Arg Gly Thr Gly Glu Pro Pro Gly Ile Gly Arg Val	50	55	60
Gly Gln Ala Phe Val Asp Ser Leu Arg Gln Gln Thr Gly Met Glu Ile	65	70	75
Gly Val Tyr Pro Val Asn Tyr Ala Ala Ser Arg Leu Gln Leu His Gly	85	90	95
Gly Asp Gly Ala Asn Asp Ala Ile Ser His Ile Lys Ser Met Ala Ser	100	105	110
Ser Cys Pro Asn Thr Lys Leu Val Leu Gly Gly Tyr Ser Gln Gly Ala	115	120	125
Thr Val Ile Asp Ile Val Ala Gly Val Pro Leu Gly Ser Ile Ser Phe	130	135	140
Gly Ser Pro Leu Pro Ala Ala Tyr Ala Asp Asn Val Ala Ala Val Ala	145	150	155
Val Phe Gly Asn Pro Ser Asn Arg Ala Gly Gly Ser Leu Ser Ser Leu	165	170	175
Ser Pro Leu Phe Gly Ser Lys Ala Ile Asp Leu Cys Asn Pro Thr Asp	180	185	190
Pro Ile Cys His Val Gly Pro Gly Asn Glu Phe Ser Gly His Ile Asp	195	200	205
Gly Tyr Ile Pro Thr Tyr Thr Thr Gln Ala Ala Ser Phe Val Val Gln	210	215	220
Arg Leu Arg Ala Gly Ser Val Pro His Leu Pro Gly Ser Val Pro Gln	225	230	235
Leu Pro Gly Ser Val Leu Gln Met Pro Gly Thr Ala Ala Pro Ala Pro	245	250	255
Glu Ser Leu His Gly Arg	260		

<210> 57

<211> 1000

<212> DNA

<213> Mycobacterium tuberculosis

<400> 57

```

cgaggagacc gacgatctgc tcgacgaaat cgacgacgtc ctcgaggaga acgccgagga 60
cttcgtccgc gcatacgtcc aaaagggcgg acagtgacct ggccgttgcc cgatcgctg 120
tccattaatt cactctctgg aacaccgcgt gtagacctat cttctttcac tgacttcctg 180
cgccgccagg cgccggagtt gctgccggca agcatcagcg gcggtgcgcc actcgcaggc 240
ggcgatgcgc aactgccgca cggcaccacc attgtcgcgc tgaaataccc cggcgggtgtt 300
gtcatggcgg gtgaccggcg ttcgacgcag ggcaacatga tttctgggcg tgatgtgcgc 360
aaggtgtata tcaccgatga ctacaccgct accggcatcg ctggcacggc tgcggtcgcg 420
gttgagtttg cccggctgta tgccgtggaa cttgagcact acgagaagct cgaggggtgtg 480
ccgctgacgt ttgccggcaa aatcaaccgg ctggcgatta tgggtgcgtg caatctggcg 540
gccgcgatgc aggtctctgt gccgttgccg ttgctggcgg gctacgacat tcatgcgtct 600
gacccgcaga gcgcgggtcg tatcgtttcg ttcgacgccg ccggcgggtg gaacatcgag 660
gaagagggct atcaggcggt gggctcgggt tcgctgttcg cgaagtcgtc gatgaagaag 720
ttgtattcgc aggttaccga cggtgattcg gggctgcggg tggcggtcga ggcgctctac 780
gacgccgccg acgacgactc cgccaccggc ggtccggacc tgggtgcggg catctttccg 840
acggcgggtg tcatcgacgc cgacggggcg gttgacgtgc cggagagccg gattgccgaa 900
ttggcccgcg cgatcatcga aagccgttcg ggtgcggata ctttcggctc cgatggcggg 960
gagaagttag ttttccgtat ttcatctcgc ctgagcaggc 1000

```

<210> 58

<211> 291

<212> PRT

<213> Mycobacterium tuberculosis

<400> 58

```

Met Thr Trp Pro Leu Pro Asp Arg Leu Ser Ile Asn Ser Leu Ser Gly
 1             5             10             15

Thr Pro Ala Val Asp Leu Ser Ser Phe Thr Asp Phe Leu Arg Arg Gln
      20             25             30

Ala Pro Glu Leu Leu Pro Ala Ser Ile Ser Gly Gly Ala Pro Leu Ala
      35             40             45

Gly Gly Asp Ala Gln Leu Pro His Gly Thr Thr Ile Val Ala Leu Lys
      50             55             60

Tyr Pro Gly Gly Val Val Met Ala Gly Asp Arg Arg Ser Thr Gln Gly
      65             70             75             80

Asn Met Ile Ser Gly Arg Asp Val Arg Lys Val Tyr Ile Thr Asp Asp
      85             90             95

Tyr Thr Ala Thr Gly Ile Ala Gly Thr Ala Ala Val Ala Val Glu Phe
      100            105            110

Ala Arg Leu Tyr Ala Val Glu Leu Glu His Tyr Glu Lys Leu Glu Gly
      115            120            125

Val Pro Leu Thr Phe Ala Gly Lys Ile Asn Arg Leu Ala Ile Met Val
      130            135            140

Arg Gly Asn Leu Ala Ala Ala Met Gln Gly Leu Leu Ala Leu Pro Leu
      145            150            155            160

Leu Ala Gly Tyr Asp Ile His Ala Ser Asp Pro Gln Ser Ala Gly Arg
      165            170            175

```

Ile Val Ser Phe Asp Ala Ala Gly Gly Trp Asn Ile Glu Glu Glu Gly  
 180 185 190  
 Tyr Gln Ala Val Gly Ser Gly Ser Leu Phe Ala Lys Ser Ser Met Lys  
 195 200 205  
 Lys Leu Tyr Ser Gln Val Thr Asp Gly Asp Ser Gly Leu Arg Val Ala  
 210 215 220  
 Val Glu Ala Leu Tyr Asp Ala Ala Asp Asp Asp Ser Ala Thr Gly Gly  
 225 230 235 240  
 Pro Asp Leu Val Arg Gly Ile Phe Pro Thr Ala Val Ile Ile Asp Ala  
 245 250 255  
 Asp Gly Ala Val Asp Val Pro Glu Ser Arg Ile Ala Glu Leu Ala Arg  
 260 265 270  
 Ala Ile Ile Glu Ser Arg Ser Gly Ala Asp Thr Phe Gly Ser Asp Gly  
 275 280 285  
 Gly Glu Lys  
 290

<210> 59  
 <211> 900  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 59  
 ttggcccgcg cgatcatcga aagccgttcg ggtgcggata ctttcggctc cgatggcgggt 60  
 gagaagtgcg ttttccgtat ttcattctcg ctgagcaggc gatgcgcgag cgcagcgagt 120  
 tggcgcgtaa gggcattgcg cgggcaaaa gcgtgggtggc gctggcctat gccggtgggtg 180  
 tgctgttcgt cgcggagaat ccgtcgcggt cgctgcagaa gatcagtgcg ctctacgatc 240  
 ggggtgggttt tgcggctgcg ggcaagttca acgagttcga caatttgcgc cgcggcggga 300  
 tccagttcgc cgacacccgc ggttacgcct atgaccgtcg tgacgtcacg ggtcggcagt 360  
 tggccaatgt ctacgcgcag actctaggca ccatcttcac cgaacaggcc aagccctacg 420  
 aggttgagtt gtgtgtggcc gaggtggcgc attacggcga gacgaaacgc cctgagttgt 480  
 atcgtattac ctacgacggg tgcgtgcgcg acgagccgca tttcgtgggtg atgggcggca 540  
 ccacggagcc gatcgccaac gcgctcaaaag agtcgtatgc cgagaacgcc agcctgaccg 600  
 acgccctgcg tatcgcggtc gctgcattgc gggccggcag tgccgacacc tcgggtgggtg 660  
 atcaaccac ccttggcgtg gccagcttag aggtggccgt tctcgatgcc aaccggccac 720  
 ggcgcgcgtt ccggcgcac accggctccg ccctgcaagc gttgctggta gaccaggaaa 780  
 gcccgcagtc tgacggcgaa tcgtcgggct gagtccgaaa gtccgacgcg tgtctgggac 840  
 cccgctgcga cgtaactgc gcctaacccc ggctcgacgc gtcgccggcc gtctgactt 900

<210> 60  
 <211> 248  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 60  
 Met Ser Phe Pro Tyr Phe Ile Ser Pro Glu Gln Ala Met Arg Glu Arg  
 1 5 10 15  
 Ser Glu Leu Ala Arg Lys Gly Ile Ala Arg Ala Lys Ser Val Val Ala



20					25					30					
Leu	Ala	Tyr	Ala	Gly	Gly	Val	Leu	Phe	Val	Ala	Glu	Asn	Pro	Ser	Arg
	35						40					45			
Ser	Leu	Gln	Lys	Ile	Ser	Glu	Leu	Tyr	Asp	Arg	Val	Gly	Phe	Ala	Ala
	50					55					60				
Ala	Gly	Lys	Phe	Asn	Glu	Phe	Asp	Asn	Leu	Arg	Arg	Gly	Gly	Ile	Gln
	65					70					75				80
Phe	Ala	Asp	Thr	Arg	Gly	Tyr	Ala	Tyr	Asp	Arg	Arg	Asp	Val	Thr	Gly
				85					90					95	
Arg	Gln	Leu	Ala	Asn	Val	Tyr	Ala	Gln	Thr	Leu	Gly	Thr	Ile	Phe	Thr
			100					105					110		
Glu	Gln	Ala	Lys	Pro	Tyr	Glu	Val	Glu	Leu	Cys	Val	Ala	Glu	Val	Ala
		115					120					125			
His	Tyr	Gly	Glu	Thr	Lys	Arg	Pro	Glu	Leu	Tyr	Arg	Ile	Thr	Tyr	Asp
	130					135					140				
Gly	Ser	Ile	Ala	Asp	Glu	Pro	His	Phe	Val	Val	Met	Gly	Gly	Thr	Thr
	145					150					155				160
Glu	Pro	Ile	Ala	Asn	Ala	Leu	Lys	Glu	Ser	Tyr	Ala	Glu	Asn	Ala	Ser
			165					170					175		
Leu	Thr	Asp	Ala	Leu	Arg	Ile	Ala	Val	Ala	Ala	Leu	Arg	Ala	Gly	Ser
			180					185					190		
Ala	Asp	Thr	Ser	Gly	Gly	Asp	Gln	Pro	Thr	Leu	Gly	Val	Ala	Ser	Leu
		195					200					205			
Glu	Val	Ala	Val	Leu	Asp	Ala	Asn	Arg	Pro	Arg	Arg	Ala	Phe	Arg	Arg
	210					215					220				
Ile	Thr	Gly	Ser	Ala	Leu	Gln	Ala	Leu	Leu	Val	Asp	Gln	Glu	Ser	Pro
	225					230					235				240
Gln	Ser	Asp	Gly	Glu	Ser	Ser	Gly								
			245												

<210> 61

<211> 1560

<212> DNA

<213> Mycobacterium tuberculosis

<400> 61

```

gagtcattgc ctggctggcg tcattccgta ctagtcggtt gtcggacttg acctactggg 60
tcaggccgac gagcactcga ccattagggt aggggccgtg acccactatg acgtcgtcgt 120
tctcggagcc ggtcccggcg ggtatgtcgc ggcgattcgc gccgcacagc tcggcctgag 180
cactgcaatc gtcgaaccca agtactgggg cggagtatgc ctcaatgtcg gctgtatccc 240
atccaaggcg ctgttgcgca acgccgaact ggtccacatc ttcaccaagg acgccaagc 300
atttggcatac agcggcgagg tgaccttoga ctacggcatc gcctatgacc gcagccgaaa 360

```

```

ggtagccgag ggcaggggtgg ccggtgtgca cttcctgatg aagaagaaca agatcaccga 420
gatccacggg tacggcacat ttgccgacgc caacacgttg ttggttgatc tcaacgacgg 480
cggtagacaa tcggtcacgt tcgacaacgc catcatcgcg accggcagta gcacccggct 540
ggttccccgc acctcactgt cggccaacgt agtcacctac gaggaacaga tcctgtccccg 600
agagctgccg aaatcgatca ttattgccgg agctgggtgcc attggcatgg agttcggcta 660
cgtgctgaag aactacggcg ttgacgtgac catcgtggaa ttccttcgcg gggcgctgcc 720
caacgaggac gccgatgtgt ccaaggagat cgagaagcag ttcaaaaagc tgggtgtcac 780
gatcctgacc gccacgaagg tcgagtccat cgccgatggc gggtcgcagg tcaccgtgac 840
cgtcaccaag gacggcgtgg cgcaagagct taaggcggaa aagggtgttc aggccatcgg 900
atttgcgccc aacgtcgaag ggtacgggct ggacaaggca ggcgtcgcgc tgaccgaccg 960
caaggctatc ggtgtcgacg actacatgcg taccaacgtg ggccacatct acgctatcgg 1020
cgatgtcaat ggattactgc agctggcgca cgtcgccgag gcacaaggcg tggtagccgc 1080
cgaaaccatt gccggtgcag agactttgac gctgggcgac catcggatgt tgccgcgcgc 1140
gacgttctgt cagccaaacg ttgccagctt cgggctcacc gagcagcaag cccgcaacga 1200
aggttacgac gtggtggtgg ccaagttccc gttcacggcc aacgccaagg cgcacggcgt 1260
gggtgacccc agtgggttcg tcaagctggt ggccgacgcc aagcacggcg agctactggg 1320
tgggcacctg gtcggccacg acgtggccga gctgctgccg gagctcacgc tggcgagag 1380
gtgggacctg accgccagcg agctggctcg caacgtccac acccaccaa cgatgtctga 1440
ggcgctgcag gagtgcttcc acggcctggt tggccacatg atcaatttct gagcggctca 1500
tgacgaggcg cgcgagcact gacacccccc agatcatcat gggtgccatc ggtggtgtgg 1560

```

<210> 62

<211> 464

<212> PRT

<213> Mycobacterium tuberculosis

<400> 62

```

Met Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr
 1              5              10              15

Val Ala Ala Ile Arg Ala Ala Gln Leu Gly Leu Ser Thr Ala Ile Val
      20              25              30

Glu Pro Lys Tyr Trp Gly Gly Val Cys Leu Asn Val Gly Cys Ile Pro
      35              40              45

Ser Lys Ala Leu Leu Arg Asn Ala Glu Leu Val His Ile Phe Thr Lys
      50              55              60

Asp Ala Lys Ala Phe Gly Ile Ser Gly Glu Val Thr Phe Asp Tyr Gly
      65              70              75              80

Ile Ala Tyr Asp Arg Ser Arg Lys Val Ala Glu Gly Arg Val Ala Gly
      85              90              95

Val His Phe Leu Met Lys Lys Asn Lys Ile Thr Glu Ile His Gly Tyr
      100             105             110

Gly Thr Phe Ala Asp Ala Asn Thr Leu Leu Val Asp Leu Asn Asp Gly
      115             120             125

Gly Thr Glu Ser Val Thr Phe Asp Asn Ala Ile Ile Ala Thr Gly Ser
      130             135             140

Ser Thr Arg Leu Val Pro Gly Thr Ser Leu Ser Ala Asn Val Val Thr
      145             150             155             160

```

Tyr	Glu	Glu	Gln	Ile	Leu	Ser	Arg	Glu	Leu	Pro	Lys	Ser	Ile	Ile	Ile	165	170	175
Ala	Gly	Ala	Gly	Ala	Ile	Gly	Met	Glu	Phe	Gly	Tyr	Val	Leu	Lys	Asn	180	185	190
Tyr	Gly	Val	Asp	Val	Thr	Ile	Val	Glu	Phe	Leu	Pro	Arg	Ala	Leu	Pro	195	200	205
Asn	Glu	Asp	Ala	Asp	Val	Ser	Lys	Glu	Ile	Glu	Lys	Gln	Phe	Lys	Lys	210	215	220
Leu	Gly	Val	Thr	Ile	Leu	Thr	Ala	Thr	Lys	Val	Glu	Ser	Ile	Ala	Asp	225	230	235
Gly	Gly	Ser	Gln	Val	Thr	Val	Thr	Val	Thr	Lys	Asp	Gly	Val	Ala	Gln	245	250	255
Glu	Leu	Lys	Ala	Glu	Lys	Val	Leu	Gln	Ala	Ile	Gly	Phe	Ala	Pro	Asn	260	265	270
Val	Glu	Gly	Tyr	Gly	Leu	Asp	Lys	Ala	Gly	Val	Ala	Leu	Thr	Asp	Arg	275	280	285
Lys	Ala	Ile	Gly	Val	Asp	Asp	Tyr	Met	Arg	Thr	Asn	Val	Gly	His	Ile	290	295	300
Tyr	Ala	Ile	Gly	Asp	Val	Asn	Gly	Leu	Leu	Gln	Leu	Ala	His	Val	Ala	305	310	315
Glu	Ala	Gln	Gly	Val	Val	Ala	Ala	Glu	Thr	Ile	Ala	Gly	Ala	Glu	Thr	325	330	335
Leu	Thr	Leu	Gly	Asp	His	Arg	Met	Leu	Pro	Arg	Ala	Thr	Phe	Cys	Gln	340	345	350
Pro	Asn	Val	Ala	Ser	Phe	Gly	Leu	Thr	Glu	Gln	Gln	Ala	Arg	Asn	Glu	355	360	365
Gly	Tyr	Asp	Val	Val	Val	Ala	Lys	Phe	Pro	Phe	Thr	Ala	Asn	Ala	Lys	370	375	380
Ala	His	Gly	Val	Gly	Asp	Pro	Ser	Gly	Phe	Val	Lys	Leu	Val	Ala	Asp	385	390	395
Ala	Lys	His	Gly	Glu	Leu	Leu	Gly	Gly	His	Leu	Val	Gly	His	Asp	Val	405	410	415
Ala	Glu	Leu	Leu	Pro	Glu	Leu	Thr	Leu	Ala	Gln	Arg	Trp	Asp	Leu	Thr	420	425	430
Ala	Ser	Glu	Leu	Ala	Arg	Asn	Val	His	Thr	His	Pro	Thr	Met	Ser	Glu	435	440	445
Ala	Leu	Gln	Glu	Cys	Phe	His	Gly	Leu	Val	Gly	His	Met	Ile	Asn	Phe	450	455	460

<210> 63  
 <211> 550  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 63  
 ggcccggctc gcggccgccc tgcaggaaaa gaaggcctgc ccaggcccag actcagccga 60  
 gtagtcaccc agtaccaccc accaggaagg accgcccatac atggcaaagc tctccaccga 120  
 cgaactgctg gacgcgttca aggaaatgac cctgttggag ctctccgact tcgtcaagaa 180  
 gtctgaggag accttcgagg tcaccgcccgc cgctccagtc gccgtcgccg ccgcccgggtgc 240  
 cgccccggcc ggtgccgccc tcgaggctgc cgaggagcag tccgagttcg acgtgatcct 300  
 tgaggccgcc ggcgacaaga agatcggcgt catcaagggtg gtccgggaga tcgtttccgg 360  
 cctgggcctc aaggaggcca aggacctggt cgacggcgcg cccaagccgc tgctggagaa 420  
 ggtcgccaaag gaggccgccc acgaggccaa ggccaagctg gaggccgccc gcgccaccgt 480  
 caccgtcaag tagctctgcc cagcgtgttc ttttgcgtct gtcggtccc tagcgaacac 540  
 tgcgccgct 550

<210> 64  
 <211> 130  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 64  
 Met Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met  
 1 5 10 15  
 Thr Leu Leu Glu Leu Ser Asp Phe Val Lys Lys Phe Glu Glu Thr Phe  
 20 25 30  
 Glu Val Thr Ala Ala Ala Pro Val Ala Val Ala Ala Ala Gly Ala Ala  
 35 40 45  
 Pro Ala Gly Ala Ala Val Glu Ala Ala Glu Glu Gln Ser Glu Phe Asp  
 50 55 60  
 Val Ile Leu Glu Ala Ala Gly Asp Lys Lys Ile Gly Val Ile Lys Val  
 65 70 75 80  
 Val Arg Glu Ile Val Ser Gly Leu Gly Leu Lys Glu Ala Lys Asp Leu  
 85 90 95  
 Val Asp Gly Ala Pro Lys Pro Leu Leu Glu Lys Val Ala Lys Glu Ala  
 100 105 110  
 Ala Asp Glu Ala Lys Ala Lys Leu Glu Ala Ala Gly Ala Thr Val Thr  
 115 120 125  
 Val Lys  
 130

<210> 65  
 <211> 900

<212> DNA

<213> Mycobacterium tuberculosis

<400> 65

```
tgaacgccat cgggtccaac gaacgcagcg ctacctgac accaccgggt ctgttagggc 60
tcttccccag gtcgtacagt cgggccatgg ccattgaggt ttcggtgttg cgggttttca 120
ccgattcaga cgggaatttc ggtaatccgc tgggggtgat caacgccagc aaggtcgaac 180
accgcgacag gcagcagctg gcagcccaat cgggctacag cgaaaccata ttcgtcgatc 240
ttcccagccc cggctcaacc accgcacacg ccaccatcca tactccccgc accgaaattc 300
cgttcgccgg acacccgacc gtgggagcgt cctggtggct gcgcgagagg gggacgcaa 360
ttaacacgct gcaggtgccg gccggcatcg tccaggtgag ctaccacggt gatctcaccg 420
ccatcagcgc ccgctcgga tgggcacccg agttcgccat ccacgacctg gattcacttg 480
atgcgcttgc cgccgcccgc cccgcccact ttccggacga catcgcgcac tacctctgga 540
cctggaccga ccgctccgct ggctcgctgc gcgcccgcat gtttgccgcc aacttggggc 600
tcaccgaaga cgaagcgacc ggtgccgagg ccattccgat taccgattac ctgagccgtg 660
acctcaccat caccagggc aaaggatcgt tgatccacac cacctggagt cccgagggct 720
gggttcgggt agccggccga gttgtcagcg acggtgtggc acaactcgac tgacgtagag 780
ctcagcgctg ccgatgcaac acggcggcaa ggtgatcctg caggggttgc ccgaccgcgc 840
gcatctgcaa cgagtacgaa agctcgtcgc cgtcgatgcg gtaggaacgg tcaagggcgg 900
```

<210> 66

<211> 228

<212> PRT

<213> Mycobacterium tuberculosis

<400> 66

```
Met Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly
 1             5             10            15

Asn Phe Gly Asn Pro Leu Gly Val Ile Asn Ala Ser Lys Val Glu His
 20            25            30

Arg Asp Arg Gln Gln Leu Ala Ala Gln Ser Gly Tyr Ser Glu Thr Ile
 35            40            45

Phe Val Asp Leu Pro Ser Pro Gly Ser Thr Thr Ala His Ala Thr Ile
 50            55            60

His Thr Pro Arg Thr Glu Ile Pro Phe Ala Gly His Pro Thr Val Gly
 65            70            75            80

Ala Ser Trp Trp Leu Arg Glu Arg Gly Thr Pro Ile Asn Thr Leu Gln
 85            90            95

Val Pro Ala Gly Ile Val Gln Val Ser Tyr His Gly Asp Leu Thr Ala
100           105           110

Ile Ser Ala Arg Ser Glu Trp Ala Pro Glu Phe Ala Ile His Asp Leu
115           120           125

Asp Ser Leu Asp Ala Leu Ala Ala Ala Asp Pro Ala Asp Phe Pro Asp
130           135           140

Asp Ile Ala His Tyr Leu Trp Thr Trp Thr Asp Arg Ser Ala Gly Ser
145           150           155           160

Leu Arg Ala Arg Met Phe Ala Ala Asn Leu Gly Val Thr Glu Asp Glu
```

165 170 175  
 Ala Thr Gly Ala Ala Ala Ile Arg Ile Thr Asp Tyr Leu Ser Arg Asp  
 180 185 190  
 Leu Thr Ile Thr Gln Gly Lys Gly Ser Leu Ile His Thr Thr Trp Ser  
 195 200 205  
 Pro Glu Gly Trp Val Arg Val Ala Gly Arg Val Val Ser Asp Gly Val  
 210 215 220  
 Ala Gln Leu Asp  
 225

<210> 67  
 <211> 500  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 67  
 gtttgtggtg tcggtggtct ggggggcgcc aactgggatt cggttggggg ggggtgcaggt 60  
 ccggcgatgg gcatcggagg tgtgggtggt ttgggtgggg ccggttcggg tccggcgatg 120  
 ggcatggggg gtgtgggtgg tttgggtggg gccggttcgg gtccggcgat gggcatgggg 180  
 ggtgtgggtg gtttagatgc ggccggttcc ggcgagggcg gctctcctgc ggcgatcggc 240  
 atcggagttg gcggaggcgg aggtgggggt gggggtggcg gcggcggggc cgacacgaac 300  
 cgctccgaca ggtcgtcggg cgtcgggggc ggagtctggc cgttgggctt cggtagggtt 360  
 gccgatgcgg gcgcggcgcg aaacgaagca ctgggggtcga agaacggctg cgctgccata 420  
 tcgtccggag cttccatacc ttcgtgcggc cggaagagct tgctcgtagtc ggccgccatg 480  
 acaacctctc agagtgcgct 500

<210> 68  
 <211> 139  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 68  
 Met Gly Ala Gly Pro Ala Met Gly Ile Gly Gly Val Gly Gly Leu Gly  
 1 5 10 15  
 Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly Leu  
 20 25 30  
 Gly Gly Ala Gly Ser Gly Pro Ala Met Gly Met Gly Gly Val Gly Gly  
 35 40 45  
 Leu Asp Ala Ala Gly Ser Gly Glu Gly Gly Ser Pro Ala Ala Ile Gly  
 50 55 60  
 Ile Gly Val Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly  
 65 70 75 80  
 Ala Asp Thr Asn Arg Ser Asp Arg Ser Ser Asp Val Gly Gly Gly Val  
 85 90 95  
 Trp Pro Leu Gly Phe Gly Arg Phe Ala Asp Ala Gly Ala Gly Gly Asn  
 100 105 110

Glu Ala Leu Gly Ser Lys Asn Gly Cys Ala Ala Ile Ser Ser Gly Ala  
 115 120 125

Ser Ile Pro Ser Cys Gly Arg Lys Ser Leu Ser  
 130 135

<210> 69

<211> 2050

<212> DNA

<213> Mycobacterium tuberculosis

<400> 69

```

agcgcaactct gagaggttgt catggcggcc gactacgaca agctcttccg gccgcacgaa 60
ggatgggaag ctccggacga tatggcagcg cagccgttct tgcaccccag tgcttcgttt 120
ccgccggcgc ccgcatcggc aaacctaccg aagcccaacg gccagactcc gcccccgacg 180
tccgacgacc tgtcggagcg gttcgtgtcg gccccggcgc cgccaccccc acccccacct 240
ccgcctccgc caactccgat gccgatcgcc gcaggagagc cgccctcgcc ggaaccggcc 300
gcatctaaac caccacacac ccccatgccc atcgccggac ccgaaccggc cccacccaaa 360
ccaccacac ccccatgcc catcgccgga ccgaaccgg cccacccaa accaccaca 420
cctccgatgc ccatcgccgg acctgcaccc accccaaccg aatcccagtt ggcgcccccc 480
agaccaccga caccacaaac gccaaaccgga gcgccgcagc aaccggaatc accggcgccc 540
cacgtaccct cgcacggggc acatcaaccc cggcgacccg caccagcacc gccctgggca 600
aagatgccaa tcggcgaacc ccgcccgcgt ccgtccagac cgtctgcgtc cccggccgaa 660
ccaccgacc ggctgcccc ccaacactcc cgacgtgcgc gccggggtca ccgctatcgc 720
acagacacg aacgaaacgt cgggaaggtg gcaactggtc catccatcca ggcgcggtcg 780
cgggcagagg aagcatccgg cgcgcagctc gccccggaa cggagccctc gccagcccg 840
ttgggccaac cgagatcgta tctggctccg cccaccgcc ccgcgccgac agaaccctcc 900
cccagcccct cgccgcagcg caactccggt cggcgtgccg agcgacgcgt ccaccccgat 960
ttagccgccc aacatgccgc ggcgcaacct gattcaatta cgcccgcaac cactggcggt 1020
cgtcgccgca agcgtgcagc gccggatctc gacgcgacac agaaatcctt aaggccggcg 1080
gccaaggggc cgaaggtgaa gaaggtgaag cccagaaaac cgaaggccac gaagccgccc 1140
aaagtgggtg cgcagcgcg ctggcgacat tgggtgcatg cgttgacgcg aatcaacctg 1200
ggcctgtcac ccgacgagaa gtacgagctg gacctgcag ctcgagtcgg ccgcaatccc 1260
cgcgggtcgt atcagatcgc cgtcgtcgg ctcaaagggt gggctggcaa aaccacgctg 1320
acagcagcgt tggggtcgac gttggctcag gtgcggggcg accggtacct ggctctagac 1380
gcggatccag gcgccggaaa cctcgccgat cgggtagggc gacaatcggg cgcgaccatc 1440
gctgatgtgc ttgcagaaaa agagctgtcg cactacaacg acatccgcgc acacactagc 1500
gtcaatgcgg tcaatctgga agtgctgccg gcaccggaat acagctcggc gcagcgcgcg 1560
ctcagcgacg ccgactggca tttcatcgcc gatcctgcgt cgaggtttta caacctcgtc 1620
ttggctgatt gtggggccgg cttcttcgac ccgctgaccc gcggcggtgt gtccacgggtg 1680
tccggtgtcg tggtcgtggc aagtgtctca atcgacggcg cacaacaggc gtcggtcgcg 1740
ttggactggt tgcgcaacaa cggttaccaa gatctggcga gccgcgcatg cgtggtcatc 1800
aatcacatca tgcggggaga acccaatgtc gcagttaaag acctggtgcg gcatttcgaa 1860
cagcaagttc aaccgggccc ggtcgtggtc atgccgtggg acaggcacat tgcggccgga 1920
accgagatct cactcgactt gctcgaccct atctacaagc gcaaggtcct cgaattggcc 1980
gcagcgctat ccgacgattt cgagaggggt ggacgtcggt gagcgcacct gctgttgctg 2040
ctggtcctac 2050

```

<210> 70

<211> 666

<212> PRT

<213> Mycobacterium tuberculosis

<400> 70

Met Ala Ala Asp Tyr Asp Lys Leu Phe Arg Pro His Glu Gly Met Glu

1	5	10	15
Ala Pro Asp Asp Met Ala Ala Gln Pro Phe Phe Asp Pro Ser Ala Ser	20	25	30
Phe Pro Pro Ala Pro Ala Ser Ala Asn Leu Pro Lys Pro Asn Gly Gln	35	40	45
Thr Pro Pro Pro Thr Ser Asp Asp Leu Ser Glu Arg Phe Val Ser Ala	50	55	60
Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Thr Pro Met	65	70	75
Pro Ile Ala Ala Gly Glu Pro Pro Ser Pro Glu Pro Ala Ala Ser Lys	85	90	95
Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Glu Pro Ala Pro Pro	100	105	110
Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Glu Pro Ala Pro	115	120	125
Pro Lys Pro Pro Thr Pro Pro Met Pro Ile Ala Gly Pro Ala Pro Thr	130	135	140
Pro Thr Glu Ser Gln Leu Ala Pro Pro Arg Pro Pro Thr Pro Gln Thr	145	150	155
Pro Thr Gly Ala Pro Gln Gln Pro Glu Ser Pro Ala Pro His Val Pro	165	170	175
Ser His Gly Pro His Gln Pro Arg Arg Thr Ala Pro Ala Pro Pro Trp	180	185	190
Ala Lys Met Pro Ile Gly Glu Pro Pro Pro Ala Pro Ser Arg Pro Ser	195	200	205
Ala Ser Pro Ala Glu Pro Pro Thr Arg Pro Ala Pro Gln His Ser Arg	210	215	220
Arg Ala Arg Arg Gly His Arg Tyr Arg Thr Asp Thr Glu Arg Asn Val	225	230	235
Gly Lys Val Ala Thr Gly Pro Ser Ile Gln Ala Arg Leu Arg Ala Glu	245	250	255
Glu Ala Ser Gly Ala Gln Leu Ala Pro Gly Thr Glu Pro Ser Pro Ala	260	265	270
Pro Leu Gly Gln Pro Arg Ser Tyr Leu Ala Pro Pro Thr Arg Pro Ala	275	280	285
Pro Thr Glu Pro Pro Pro Ser Pro Ser Pro Gln Arg Asn Ser Gly Arg	290	295	300
Arg Ala Glu Arg Arg Val His Pro Asp Leu Ala Ala Gln His Ala Ala			



305		310		315		320
Ala Gln Pro Asp Ser Ile Thr Ala Ala Thr Thr Gly Gly Arg Arg Arg						
		325		330		335
Lys Arg Ala Ala Pro Asp Leu Asp Ala Thr Gln Lys Ser Leu Arg Pro						
		340		345		350
Ala Ala Lys Gly Pro Lys Val Lys Lys Val Lys Pro Gln Lys Pro Lys						
		355		360		365
Ala Thr Lys Pro Pro Lys Val Val Ser Gln Arg Gly Trp Arg His Trp						
		370		375		380
Val His Ala Leu Thr Arg Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys						
		385		390		395
Tyr Glu Leu Asp Leu His Ala Arg Val Arg Arg Asn Pro Arg Gly Ser						
		405		410		415
Tyr Gln Ile Ala Val Val Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr						
		420		425		430
Leu Thr Ala Ala Leu Gly Ser Thr Leu Ala Gln Val Arg Ala Asp Arg						
		435		440		445
Ile Leu Ala Leu Asp Ala Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg						
		450		455		460
Val Gly Arg Gln Ser Gly Ala Thr Ile Ala Asp Val Leu Ala Glu Lys						
		465		470		475
Glu Leu Ser His Tyr Asn Asp Ile Arg Ala His Thr Ser Val Asn Ala						
		485		490		495
Val Asn Leu Glu Val Leu Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg						
		500		505		510
Ala Leu Ser Asp Ala Asp Trp His Phe Ile Ala Asp Pro Ala Ser Arg						
		515		520		525
Phe Tyr Asn Leu Val Leu Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro						
		530		535		540
Leu Thr Arg Gly Val Leu Ser Thr Val Ser Gly Val Val Val Val Ala						
		545		550		555
Ser Val Ser Ile Asp Gly Ala Gln Gln Ala Ser Val Ala Leu Asp Trp						
		565		570		575
Leu Arg Asn Asn Gly Tyr Gln Asp Leu Ala Ser Arg Ala Cys Val Val						
		580		585		590
Ile Asn His Ile Met Pro Gly Glu Pro Asn Val Ala Val Lys Asp Leu						
		595		600		605
Val Arg His Phe Glu Gln Gln Val Gln Pro Gly Arg Val Val Val Met						

610	615	620
Pro Trp Asp Arg His Ile Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu		
625	630	635 640
Leu Asp Pro Ile Tyr Lys Arg Lys Val Leu Glu Leu Ala Ala Ala Leu		
	645	650 655
Ser Asp Asp Phe Glu Arg Ala Gly Arg Arg		
660	665	

<210> 71  
 <211> 1890  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 71

gcagcgatga	ggaggagcgg	cgccaacggc	ccgcgcgcggc	gacgatgcaa	agcgcagcga	60
tgaggaggag	cggcgcgcat	gactgctgaa	ccggaagtac	ggacgctgcg	cgaggttgtg	120
ctggaccagc	tcggcactgc	tgaatcgcgt	gcgtacaaga	tgtggctgcc	gccgttgacc	180
aatccgggtcc	cgctcaacga	gctcatcgcc	cgtgatcggc	gacaacccct	gcgatttgcc	240
ctggggatca	tggatgaacc	gcgcgcgcat	ctacaggatg	tgtggggcgt	agacgtttcc	300
ggggccggcg	gcaacatcgg	tattgggggc	gcacctcaaa	ccgggaagtc	gacgctactg	360
cagacgatgg	tgatgtcggc	cgccgccaca	cactcaccgc	gcaacgttca	gttctattgc	420
atcgacctag	gtggcggcgg	gctgatctat	ctcgaaaacc	ttccacacgt	cggtggggta	480
gccaatccggt	ccgagcccga	caaggtcaac	cgggtggtcg	cagagatgca	agccgtcatg	540
cggcaacggg	aaaccacctt	caaggaacac	cgagtgggct	cgatcgggat	gtaccggcag	600
ctgctgtgacg	atccaagtca	acccggttgcg	tccgatccat	acggcgcacgt	ctttctgatc	660
atcgacggat	ggcccggttt	tgtcggcgag	ttccccgacc	ttgaggggca	ggttcaagat	720
ctggccgccc	aggggctggg	gttcggcgctc	cacgtcatca	tctccacgcc	acgctggaca	780
gagctgaagt	cgcgtgttcg	cgactacctc	ggcaccaaga	tcgagttccg	gcttgggtgac	840
gtcaatgaaa	cccagatcga	ccggattacc	cgcgagatcc	cggcgaatcg	tccgggtcgg	900
gcagtgtcga	tggaaaagca	ccatctgatg	atcggcgtgc	ccaggttcga	cggcgtgcac	960
agcgcgata	acctggtgga	ggcgatcacc	gcgggggtga	cgcagatcgc	ttcccagcac	1020
accgaacagg	cacctccggt	gcgggtcctg	ccggagcgta	tccacctgca	cgaactcgac	1080
ccgaaccgcg	cgggaccaga	gtccgactac	cgcactcgct	gggagattcc	gatcggcttg	1140
cgcgagacgg	acctgacgcc	ggctcactgc	cacatgcaca	cgaaccgcga	cctactgatc	1200
ttcgggtgcg	ccaaatcggg	caagacgacc	attgcccacg	cgatcgcgcg	cgccatttgt	1260
gcccgaaca	gtccccagca	ggtgcggttc	atgctcgcgg	actaccgctc	gggcctgctg	1320
gacgcggtgc	cggacaccca	tctgctgggc	gccggcgcga	tcaaccgcaa	cagcgcgtcg	1380
ctagacgagg	ccgctcaagc	actggcggtc	aacctgaaga	agcggttgcc	gccgaccgac	1440
ctgacgacgg	cgcagctacg	ctcgcgttcg	tggtggagcg	gatttgacgt	cgtgcttctg	1500
gtcgacgatt	ggcacatgat	cgtgggtgcc	gccgggggga	tgccgccgat	ggcaccgctg	1560
gccccgttat	tgccggcgcg	ggcagatata	gggttgacac	tcattgtcac	ctgtcagatg	1620
agccaggtct	acaaggcaac	catggacaag	ttcgtcggcg	ccgcattcgg	gtcgggcgct	1680
ccgacaatgt	tcctttcggg	cgagaagcag	gaattcccat	ccagtgagtt	caaggtcaag	1740
cggcgccccc	ctggccaggc	atttctcgtc	tcgccagacg	gcaaagaggt	catccaggcc	1800
ccctacatcg	agcctccaga	agaagtgttc	gcagcaccgc	caagcgccgg	ttaagattat	1860
ttcattgccg	gtgtagcagg	acccgagctc				1890

<210> 72  
 <211> 591  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 72

Met	Thr	Ala	Glu	Pro	Glu	Val	Arg	Thr	Leu	Arg	Glu	Val	Val	Leu	Asp	
1				5					10					15		
Gln	Leu	Gly	Thr	Ala	Glu	Ser	Arg	Ala	Tyr	Lys	Met	Trp	Leu	Pro	Pro	
			20					25					30			
Leu	Thr	Asn	Pro	Val	Pro	Leu	Asn	Glu	Leu	Ile	Ala	Arg	Asp	Arg	Arg	
		35					40					45				
Gln	Pro	Leu	Arg	Phe	Ala	Leu	Gly	Ile	Met	Asp	Glu	Pro	Arg	Arg	His	
	50					55					60					
Leu	Gln	Asp	Val	Trp	Gly	Val	Asp	Val	Ser	Gly	Ala	Gly	Gly	Asn	Ile	
65					70					75					80	
Gly	Ile	Gly	Gly	Ala	Pro	Gln	Thr	Gly	Lys	Ser	Thr	Leu	Leu	Gln	Thr	
				85					90					95		
Met	Val	Met	Ser	Ala	Ala	Ala	Thr	His	Ser	Pro	Arg	Asn	Val	Gln	Phe	
			100					105					110			
Tyr	Cys	Ile	Asp	Leu	Gly	Gly	Gly	Gly	Leu	Ile	Tyr	Leu	Glu	Asn	Leu	
	115						120					125				
Pro	His	Val	Gly	Gly	Val	Ala	Asn	Arg	Ser	Glu	Pro	Asp	Lys	Val	Asn	
	130					135					140					
Arg	Val	Val	Ala	Glu	Met	Gln	Ala	Val	Met	Arg	Gln	Arg	Glu	Thr	Thr	
145					150					155					160	
Phe	Lys	Glu	His	Arg	Val	Gly	Ser	Ile	Gly	Met	Tyr	Arg	Gln	Leu	Arg	
				165					170					175		
Asp	Asp	Pro	Ser	Gln	Pro	Val	Ala	Ser	Asp	Pro	Tyr	Gly	Asp	Val	Phe	
			180					185					190			
Leu	Ile	Ile	Asp	Gly	Trp	Pro	Gly	Phe	Val	Gly	Glu	Phe	Pro	Asp	Leu	
	195						200					205				
Glu	Gly	Gln	Val	Gln	Asp	Leu	Ala	Ala	Gln	Gly	Leu	Gly	Phe	Gly	Val	
	210					215					220					
His	Val	Ile	Ile	Ser	Thr	Pro	Arg	Trp	Thr	Glu	Leu	Lys	Ser	Arg	Val	
225					230					235					240	
Arg	Asp	Tyr	Leu	Gly	Thr	Lys	Ile	Glu	Phe	Arg	Leu	Gly	Asp	Val	Asn	
			245						250					255		
Glu	Thr	Gln	Ile	Asp	Arg	Ile	Thr	Arg	Glu	Ile	Pro	Ala	Asn	Arg	Pro	
		260						265					270			
Gly	Arg	Ala	Val	Ser	Met	Glu	Lys	His	His	Leu	Met	Ile	Gly	Val	Pro	
	275						280					285				
Arg	Phe	Asp	Gly	Val	His	Ser	Ala	Asp	Asn	Leu	Val	Glu	Ala	Ile	Thr	
	290					295					300					

Ala	Gly	Val	Thr	Gln	Ile	Ala	Ser	Gln	His	Thr	Glu	Gln	Ala	Pro	Pro	305	310	315	320
Val	Arg	Val	Leu	Pro	Glu	Arg	Ile	His	Leu	His	Glu	Leu	Asp	Pro	Asn	325	330	335	
Pro	Pro	Gly	Pro	Glu	Ser	Asp	Tyr	Arg	Thr	Arg	Trp	Glu	Ile	Pro	Ile	340	345	350	
Gly	Leu	Arg	Glu	Thr	Asp	Leu	Thr	Pro	Ala	His	Cys	His	Met	His	Thr	355	360	365	
Asn	Pro	His	Leu	Leu	Ile	Phe	Gly	Ala	Ala	Lys	Ser	Gly	Lys	Thr	Thr	370	375	380	
Ile	Ala	His	Ala	Ile	Ala	Arg	Ala	Ile	Cys	Ala	Arg	Asn	Ser	Pro	Gln	385	390	395	400
Gln	Val	Arg	Phe	Met	Leu	Ala	Asp	Tyr	Arg	Ser	Gly	Leu	Leu	Asp	Ala	405	410	415	
Val	Pro	Asp	Thr	His	Leu	Leu	Gly	Ala	Gly	Ala	Ile	Asn	Arg	Asn	Ser	420	425	430	
Ala	Ser	Leu	Asp	Glu	Ala	Ala	Gln	Ala	Leu	Ala	Val	Asn	Leu	Lys	Lys	435	440	445	
Arg	Leu	Pro	Pro	Thr	Asp	Leu	Thr	Thr	Ala	Gln	Leu	Arg	Ser	Arg	Ser	450	455	460	
Trp	Trp	Ser	Gly	Phe	Asp	Val	Val	Leu	Leu	Val	Asp	Asp	Trp	His	Met	465	470	475	480
Ile	Val	Gly	Ala	Ala	Gly	Gly	Met	Pro	Pro	Met	Ala	Pro	Leu	Ala	Pro	485	490	495	
Leu	Leu	Pro	Ala	Ala	Ala	Asp	Ile	Gly	Leu	His	Ile	Ile	Val	Thr	Cys	500	505	510	
Gln	Met	Ser	Gln	Ala	Tyr	Lys	Ala	Thr	Met	Asp	Lys	Phe	Val	Gly	Ala	515	520	525	
Ala	Phe	Gly	Ser	Gly	Ala	Pro	Thr	Met	Phe	Leu	Ser	Gly	Glu	Lys	Gln	530	535	540	
Glu	Phe	Pro	Ser	Ser	Glu	Phe	Lys	Val	Lys	Arg	Arg	Pro	Pro	Gly	Gln	545	550	555	560
Ala	Phe	Leu	Val	Ser	Pro	Asp	Gly	Lys	Glu	Val	Ile	Gln	Ala	Pro	Tyr	565	570	575	
Ile	Glu	Pro	Pro	Glu	Glu	Val	Phe	Ala	Ala	Pro	Pro	Ser	Ala	Gly		580	585	590	

<210> 73

<211> 15

<212> PRT  
<213> Mycobacterium tuberculosis

<400> 73  
Asp Pro Val Asp Asp Ala Phe Ile Ala Lys Leu Asn Thr Ala Gly  
1 5 10 15

<210> 74  
<211> 14  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> UNSURE  
<222> (14)  
<223> Xaa is unknown

<400> 74  
Asp Pro Val Asp Ala Ile Ile Asn Leu Asp Asn Tyr Gly Xaa  
1 5 10

<210> 75  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> UNSURE  
<222> (5)  
<223> Xaa is unknown

<400> 75  
Ala Glu Met Lys Xaa Phe Lys Asn Ala Ile Val Gln Glu Ile Asp  
1 5 10 15

<210> 76  
<211> 14  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (3)  
<223> Ala is Ala or Gln

<220>  
<221> VARIANT  
<222> (7)  
<223> Thr is Gly or Thr

<220>  
<221> UNSURE  
<222> (11)  
<223> Xaa is unknown

<400> 76  
Val Ile Ala Gly Met Val Thr His Ile His Xaa Val Ala Gly  
1 5 10

<210> 77  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 77  
Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser  
1 5 10 15

<210> 78  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 78  
Ala Ile Glu Val Ser Val Leu Arg Val Phe Thr Asp Ser Asp Gly  
1 5 10 15

<210> 79  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 79  
Ala Lys Leu Ser Thr Asp Glu Leu Leu Asp Ala Phe Lys Glu Met  
1 5 10 15

<210> 80  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (4)  
<223> Asp is Asp or Glu

<400> 80  
Asp Pro Ala Asp Ala Pro Asp Val Pro Thr Ala Ala Gln Leu Thr  
1 5 10 15

<210> 81  
<211> 50  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 81

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
 1 5 10 15  
 Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
 20 25 30  
 Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr  
 35 40 45  
 Val Ser  
 50

<210> 82  
 <211> 15  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 82  
 Thr Thr Ser Pro Asp Pro Tyr Ala Ala Leu Pro Lys Leu Pro Ser  
 1 5 10 15

<210> 83  
 <211> 15  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 83  
 Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln  
 1 5 10 15

<210> 84  
 <211> 15  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 84  
 Thr Thr Ile Val Ala Leu Lys Tyr Pro Gly Gly Val Val Met Ala  
 1 5 10 15

<210> 85  
 <211> 15  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<220>  
 <221> UNSURE  
 <222> (10)  
 <223> Xaa is unknown

<220>  
 <221> UNSURE  
 <222> (15)  
 <223> Xaa is unknown

<400> 85

Ser Phe Pro Tyr Phe Ile Ser Pro Glu Xaa Ala Met Arg Glu Xaa  
1 5 10 15

<210> 86

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 86

Thr His Tyr Asp Val Val Val Leu Gly Ala Gly Pro Gly Gly Tyr  
1 5 10 15

<210> 87

<211> 450

<212> DNA

<213> Mycobacterium tuberculosis

<400> 87

agcccggtaa tcgagttcgg gcaatgctga ccatcggggtt tgtttccggc tataaccgaa 60  
cggtttgtgt acgggataca aatacagggg ggaagaagt aggcaaatgg aaaaaatgtc 120  
acatgatccg atcgctgccg acattggcac gcaagtgagc gacaacgctc tgcacggcgt 180  
gacggccggc tcgacggcgc tgacgtcggg gaccgggctg gttcccgcgg gggccgatga 240  
ggtctccgcc caagcggcga cggcgttcac atcggagggg atccaattgc tggcttccaa 300  
tgcacgggcc caagaccagc tccaccgtgc gggcgaagcg gtccaggacg tcgcccgcac 360  
ctattcgcaa atcgacgacg gcgccgccgg cgtcttcgcc taataggccc ccaacacatc 420  
ggaggggagt atcaccatgc tgtggcacgc 450

<210> 88

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 88

Met Glu Lys Met Ser His Asp Pro Ile Ala Ala Asp Ile Gly Thr Gln  
1 5 10 15

Val Ser Asp Asn Ala Leu His Gly Val Thr Ala Gly Ser Thr Ala Leu  
20 25 30

Thr Ser Val Thr Gly Leu Val Pro Ala Gly Ala Asp Glu Val Ser Ala  
35 40 45

Gln Ala Ala Thr Ala Phe Thr Ser Glu Gly Ile Gln Leu Leu Ala Ser  
50 55 60

Asn Ala Ser Ala Gln Asp Gln Leu His Arg Ala Gly Glu Ala Val Gln  
65 70 75 80

Asp Val Ala Arg Thr Tyr Ser Gln Ile Asp Asp Gly Ala Ala Gly Val  
85 90 95

Phe Ala



<210> 89  
<211> 460  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 89  
gcaaccggct tttcgatcag ctgagacatc agcggcgtgc ggggtcaacga cccacctgcg 60  
ccaggtagcg actccgcgcg cagcaggccc gcgcccgcgc tggggcctga tccaccagcc 120  
agcggatggt tcgacagcgg actggtgccg agcaggccca tctgcgcggc ttcctcgtcg 180  
gctgggttgc cgcgcgggt gccgccacc tggtgaaca acgacgtcac ctgctgcagc 240  
ggctgggtca gctgctgcat cgggccgctc atctcaccca gttggccgag ggtctgggta 300  
gccgccggcg gcaactggcc aaccggtgtt gagctgccag gggagggcat tccgaagatc 360  
gggttcgtcg tgctctggct cgcgccggga tcaaggatcg acgccatcgg ctcgagcttc 420  
tcgaaaagcg tgtaaccgc ggtctcggcc tggtagacct 460

<210> 90  
<211> 139  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 90  
Met Arg Val Asn Asp Pro Pro Ala Pro Gly Ser Asp Ser Ala Arg Ser  
1 5 10 15  
Arg Pro Ala Pro Ala Leu Gly Pro Asp Pro Pro Ala Ser Gly Trp Phe  
20 25 30  
Asp Ser Gly Leu Val Pro Ser Arg Pro Ile Cys Ala Ala Ser Ser Ser  
35 40 45  
Ala Gly Leu Pro Pro Pro Val Pro Pro Thr Trp Leu Asn Asn Asp Val  
50 55 60  
Thr Cys Cys Ser Gly Trp Val Ser Cys Cys Ile Gly Pro Leu Ile Ser  
65 70 75 80  
Pro Ser Trp Pro Arg Val Trp Val Ala Ala Gly Gly Asn Trp Pro Thr  
85 90 95  
Gly Val Glu Leu Pro Gly Glu Gly Ile Pro Lys Ile Gly Phe Val Val  
100 105 110  
Leu Trp Leu Ala Pro Gly Ser Arg Ile Asp Ala Ile Gly Ser Ser Phe  
115 120 125  
Ser Lys Ser Val Leu Thr Ala Val Ser Ala Trp  
130 135

<210> 91  
<211> 1200  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 91

```

taataggccc ccaacacatc ggagggagtg atcaccatgc tgtggcacgc aatgccaccg 60
gagctaaata ccgcacggct gatggcggc gcggtccgg ctccaatgct tgcggcggcc 120
gcgggatggc agacgctttc ggcggtcttg gacgctcagg ccgtcgagtt gaccgcgcgc 180
ctgaactctc tgggagaagc ctggactgga ggtggcagcg acaaggcgct tgcggctgca 240
acgccgatgg tggcttggct acaaaccgcg tcaacacagg ccaagaccgc tgcgatgcag 300
gcgacggcgc aagccgcggc atacaccag gccatggcca cgacgccgtc gctgccggag 360
atcgccgcca accacatcac ccaggccgtc cttacggcca ccaacttctt cggtatcaac 420
acgatcccga tcgcgttgac cgagatggat tatttcatcc gtatgtggaa ccaggcagcc 480
ctggcaatgg aggtctacca ggccgagacc gcggttaaca cgcttttcga gaagctcgag 540
ccgatggcgt cgatccttga tcccggcgcg agccagagca cgacgaaccg gatcttcgga 600
atgccctccc ctggcagctc aacaccggtt ggccagtgtc cgccggcggc taccagacc 660
ctcgcccaac tgggtgagat gagcggcccg atgcagcagc tgaccagcc gctgcagcag 720
gtgacgtcgt tgttcagcca ggtggcggc accggcggcg gcaaccagc cgacgaggaa 780
gccgcgcaga tgggcctgct cggcaccagt ccgctgtcga accatccgct ggctggtgga 840
tcaggcccca gcgcgggcgc gggcctgctg cgcgcgagtg cgctacctgg cgcaggtggg 900
tcgttgacct gcacgccgct gatgtctcag ctgatcgaaa agccggttgc cccctcggtg 960
atgccggcgg ctgctgccgg atcgtcggcg acgggtggcg ccgctccggt gggcgcggga 1020
gcgatgggcc agggcgcgca atccggcggc tccaccaggc cgggtctggt cgcgccggca 1080
ccgctcgcgc aggagcgtga agaagacgac gaggacgact gggacgaaga ggacgactgg 1140
tgagctcccc taatgacaac agacttcccc gccaccggg ccggaagact tgccaacatt 1200

```

<210> 92

<211> 371

<212> PRT

<213> Mycobacterium tuberculosis

<400> 92

```

Met Ile Thr Met Leu Trp His Ala Met Pro Pro Glu Leu Asn Thr Ala
 1             5             10             15

```

```

Arg Leu Met Ala Gly Ala Gly Pro Ala Pro Met Leu Ala Ala Ala Ala
      20             25             30

```

```

Gly Trp Gln Thr Leu Ser Ala Ala Leu Asp Ala Gln Ala Val Glu Leu
 35             40             45

```

```

Thr Ala Arg Leu Asn Ser Leu Gly Glu Ala Trp Thr Gly Gly Gly Ser
 50             55             60

```

```

Asp Lys Ala Leu Ala Ala Ala Thr Pro Met Val Val Trp Leu Gln Thr
 65             70             75             80

```

```

Ala Ser Thr Gln Ala Lys Thr Arg Ala Met Gln Ala Thr Ala Gln Ala
      85             90             95

```

```

Ala Ala Tyr Thr Gln Ala Met Ala Thr Thr Pro Ser Leu Pro Glu Ile
 100            105            110

```

```

Ala Ala Asn His Ile Thr Gln Ala Val Leu Thr Ala Thr Asn Phe Phe
 115            120            125

```

```

Gly Ile Asn Thr Ile Pro Ile Ala Leu Thr Glu Met Asp Tyr Phe Ile
 130            135            140

```

```

Arg Met Trp Asn Gln Ala Ala Leu Ala Met Glu Val Tyr Gln Ala Glu
 145            150            155            160

```

Thr Ala Val Asn Thr Leu Phe Glu Lys Leu Glu Pro Met Ala Ser Ile  
 165 170 175  
 Leu Asp Pro Gly Ala Ser Gln Ser Thr Thr Asn Pro Ile Phe Gly Met  
 180 185 190  
 Pro Ser Pro Gly Ser Ser Thr Pro Val Gly Gln Leu Pro Pro Ala Ala  
 195 200 205  
 Thr Gln Thr Leu Gly Gln Leu Gly Glu Met Ser Gly Pro Met Gln Gln  
 210 215 220  
 Leu Thr Gln Pro Leu Gln Gln Val Thr Ser Leu Phe Ser Gln Val Gly  
 225 230 235 240  
 Gly Thr Gly Gly Gly Asn Pro Ala Asp Glu Glu Ala Ala Gln Met Gly  
 245 250 255  
 Leu Leu Gly Thr Ser Pro Leu Ser Asn His Pro Leu Ala Gly Gly Ser  
 260 265 270  
 Gly Pro Ser Ala Gly Ala Gly Leu Leu Arg Ala Glu Ser Leu Pro Gly  
 275 280 285  
 Ala Gly Gly Ser Leu Thr Arg Thr Pro Leu Met Ser Gln Leu Ile Glu  
 290 295 300  
 Lys Pro Val Ala Pro Ser Val Met Pro Ala Ala Ala Ala Gly Ser Ser  
 305 310 315 320  
 Ala Thr Gly Gly Ala Ala Pro Val Gly Ala Gly Ala Met Gly Gln Gly  
 325 330 335  
 Ala Gln Ser Gly Gly Ser Thr Arg Pro Gly Leu Val Ala Pro Ala Pro  
 340 345 350  
 Leu Ala Gln Glu Arg Glu Glu Asp Asp Glu Asp Asp Trp Asp Glu Glu  
 355 360 365  
 Asp Asp Trp  
 370

<210> 93

<211> 1000

<212> DNA

<213> Mycobacterium tuberculosis

<400> 93

gagcgcgacac agaaatcctt aaggccggcg gccaaaggggc cgaagggtgaa gaagggtgaag 60  
 cccagaaac cgaaggccac gaagccgccc aaagtgggtgt cgcagcgcgg ctggcgacat 120  
 tgggtgcatg cgttgacgcg aatcaacctg ggcctgtcac ccgacgagaa gtacgagctg 180  
 gacctgcacg ctcgagtccg ccgcaatccc cgcgggtcgt atcagatcgc cgctcgtcgt 240  
 ctcaaagggtg gggctggcaa aaccacgctg acagcagcgt tggggtcgac gttggctcag 300  
 gtgcggggccg accggatcct ggctctagac gcggatccag gcgccggaaa cctcgccgat 360  
 cgggtagggc gacaatcggg cgcgaccatc gctgatgtgc ttgcagaaaa agagctgtcg 420  
 cactacaacg acatccgcgc acacactagc gtcaatgcgg tcaatctgga agtgctgccg 480

```

gcaccggaat acagctcggc gcagcgcgcg ctcagcgcgc ccgactggca tttcatcgcc 540
gatcctgcgt cgaggtttta caacctcgtc ttggctgatt gtggggccgg cttcttcgac 600
ccgctgaccc gcggcgtgct gtccacgggtg tccgggtgctg tggctcgtggc aagtgtctca 660
atcgacggcg cacaacaggc gtcggtcgcg ttggactggg tgcgcaacaa cggttaccaa 720
gatttggcga gccgcgcatg cgtggtcac c aatcacatca tgccgggaga acccaatgtc 780
gcagttaaag acctgggtgcg gcatttcgaa cagcaagttc aacccggccg ggtcgtggtc 840
atgccgtggg acaggcacat tgcggccgga accgagattt cactcgactt gctcgaccct 900
atctacaagc gcaaggtcct cgaattggcc gcagcgctat ccgacgattt cgagaggggt 960
ggacgtcgtt gagcgcacct gctgttgctg ctggtcctac 1000

```

<210> 94

<211> 308

<212> PRT

<213> Mycobacterium tuberculosis

<400> 94

```

Met Lys Lys Val Lys Pro Gln Lys Pro Lys Ala Thr Lys Pro Pro Lys
  1              5              10              15

```

```

Val Val Ser Gln Arg Gly Trp Arg His Trp Val His Ala Leu Thr Arg
      20              25              30

```

```

Ile Asn Leu Gly Leu Ser Pro Asp Glu Lys Tyr Glu Leu Asp Leu His
      35              40              45

```

```

Ala Arg Val Arg Arg Asn Pro Arg Gly Ser Tyr Gln Ile Ala Val Val
      50              55              60

```

```

Gly Leu Lys Gly Gly Ala Gly Lys Thr Thr Leu Thr Ala Ala Leu Gly
      65              70              75              80

```

```

Ser Thr Leu Ala Gln Val Arg Ala Asp Arg Ile Leu Ala Leu Asp Ala
      85              90              95

```

```

Asp Pro Gly Ala Gly Asn Leu Ala Asp Arg Val Gly Arg Gln Ser Gly
      100             105             110

```

```

Ala Thr Ile Ala Asp Val Leu Ala Glu Lys Glu Leu Ser His Tyr Asn
      115             120             125

```

```

Asp Ile Arg Ala His Thr Ser Val Asn Ala Val Asn Leu Glu Val Leu
      130             135             140

```

```

Pro Ala Pro Glu Tyr Ser Ser Ala Gln Arg Ala Leu Ser Asp Ala Asp
      145             150             155             160

```

```

Trp His Phe Ile Ala Asp Pro Ala Ser Arg Phe Tyr Asn Leu Val Leu
      165             170             175

```

```

Ala Asp Cys Gly Ala Gly Phe Phe Asp Pro Leu Thr Arg Gly Val Leu
      180             185             190

```

```

Ser Thr Val Ser Gly Val Val Val Val Ala Ser Val Ser Ile Asp Gly
      195             200             205

```

```

Ala Gln Gln Ala Ser Val Ala Leu Asp Trp Leu Arg Asn Asn Gly Tyr
      210             215             220

```

Gln Asp Leu Ala Ser Arg Ala Cys Val Val Ile Asn His Ile Met Pro  
 225 230 235 240  
 Gly Glu Pro Asn Val Ala Val Lys Asp Leu Val Arg His Phe Glu Gln  
 245 250 255  
 Gln Val Gln Pro Gly Arg Val Val Val Met Pro Trp Asp Arg His Ile  
 260 265 270  
 Ala Ala Gly Thr Glu Ile Ser Leu Asp Leu Leu Asp Pro Ile Tyr Lys  
 275 280 285  
 Arg Lys Val Leu Glu Leu Ala Ala Ala Leu Ser Asp Asp Phe Glu Arg  
 290 295 300  
 Ala Gly Arg Arg  
 305

<210> 95  
 <211> 34  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 95  
 aagagtagat ctatgatggc cgaggatggt cgcg 34

<210> 96  
 <211> 27  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 96  
 cggcgacgac ggatcctacc gcgtcgg 27

<210> 97  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 97  
 ccttgggaga tctttggacc ccggttgc 28

<210> 98  
 <211> 25  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 98  
 gacgagatct tatgggctta ctgac 25

<210> 99  
 <211> 33  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 99 ccccccagat ctgcaccacc ggcacgcggcg ggc	33
<210> 100 <211> 24 <212> DNA <213> Mycobacterium tuberculosis	
<400> 100 gcggcggatc cgcttgcttag ccgg	24
<210> 101 <211> 32 <212> DNA <213> Mycobacterium tuberculosis	
<400> 101 ccggctgaga tctatgacag aatacgaagg gc	32
<210> 102 <211> 24 <212> DNA <213> Mycobacterium tuberculosis	
<400> 102 ccccgccagg gaactagagg cggc	24
<210> 103 <211> 38 <212> DNA <213> Mycobacterium tuberculosis	
<400> 103 ctgccgagat ctaccacat tgcgcgcgtg aaataccc	38
<210> 104 <211> 25 <212> DNA <213> Mycobacterium tuberculosis	
<400> 104 cgccatggcc ttacgcgcca actcg	25
<210> 105 <211> 32 <212> DNA <213> Mycobacterium tuberculosis	
<400> 105 ggcggagatc tgtgagtttt ccgtatttca tc	32
<210> 106 <211> 25 <212> DNA <213> Mycobacterium tuberculosis	
<400> 106	

cgcgctcgagc catggttagg cgag	25
<210> 107	
<211> 32	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 107	
gaggaagatc tatgacaact tcacccgacc cg	32
<210> 108	
<211> 28	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 108	
catgaagcca tggcccgcag gctgcatg	28
<210> 109	
<211> 33	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 109	
ggccgagatc tgtgaccac tatgacgtcg tcg	33
<210> 110	
<211> 36	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 110	
ggcgcccacg gtcagaaatt gatcatgtgg ccaacc	36
<210> 111	
<211> 33	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 111	
ccgggagatc tatggcaaag ctctccaccg acg	33
<210> 112	
<211> 32	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 112	
cgctgggcag agctacttga cggtgacggt gg	32
<210> 113	
<211> 36	
<212> DNA	
<213> Mycobacterium tuberculosis	
<400> 113	
ggcccagatc tatggccatt gaggtttcgg tgttgc	36

<210> 114  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 114  
 cgccgtgttg catggcagcg ctgagc 26

<210> 115  
 <211> 24  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 115  
 ggacgttcaa gcgacacatc gccg 24

<210> 116  
 <211> 24  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 116  
 cagcacgaac gcgccgtcga tggc 24

<210> 117  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 117  
 acagatctgt gacggacatg aacccg 26

<210> 118  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 118  
 ttttccatgg tcacgggccc ccggtact 28

<210> 119  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 119  
 acagatctgt gcccatggca cagata 26

<210> 120  
 <211> 27  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 120  
 tttaagcttc taggcgccc gcgcggc 27



<210> 121  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 121  
 acagatctgc gcatgcggat ccgtgt 26  
  
 <210> 122  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 122  
 ttttccatgg tcatccggcg tgatcgag 28  
  
 <210> 123  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 123  
 acagatctgt aatggcagac tgtgat 26  
  
 <210> 124  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 124  
 ttttccatgg tcaggagatg gtgatcga 28  
  
 <210> 125  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 125  
 acagatctgc cggctacccc ggtgcc 26  
  
 <210> 126  
 <211> 28  
 <212> DNA  
 <213> Mycobacterium tuberculosis  
  
 <400> 126  
 ttttccatgg ctattgcagc tttccggc 28  
  
 <210> 127  
 <211> 50  
 <212> PRT  
 <213> Mycobacterium tuberculosis  
  
 <400> 127  
 Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
 1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Tyr Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr  
35 40 45

Val Ser  
50

<210> 128

<211> 49

<212> PRT

<213> Mycobacterium tuberculosis

<400> 128

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr Val  
35 40 45

Ser

<210> 129

<211> 50

<212> PRT

<213> Mycobacterium tuberculosis

<400> 129

Ala Glu Asp Val Arg Ala Glu Ile Val Ala Ser Val Leu Glu Val Val  
1 5 10 15

Val Asn Glu Gly Asp Gln Ile Asp Lys Gly Asp Val Val Val Leu Leu  
20 25 30

Glu Ser Met Lys Met Glu Ile Pro Val Leu Ala Glu Ala Ala Gly Thr  
35 40 45

Val Ser  
50

<210> 130

<211> 33

<212> DNA

<213> Mycobacterium tuberculosis

<400> 130

ccgggagatc tatggcaaag ctctccaccg acg

33

<210> 131

<211> 32  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 131  
 cgctgggcag agctacttga cggtgacggt gg 32

<210> 132  
 <211> 36  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 132  
 ggcgccggca agcttgccat gacagagcag cagtgg 36

<210> 133  
 <211> 26  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 133  
 cgaactcgcc ggatcccgtg tttcgc 26

<210> 134  
 <211> 32  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 134  
 ggcaaccgcg agatctttct cccggccggg gc 32

<210> 135  
 <211> 27  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 135  
 ggcaagcttg ccggcgccta acgaact 27

<210> 136  
 <211> 30  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 136  
 ggacccagat ctatgacaga gcagcagtgg 30

<210> 137  
 <211> 47  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 137  
 ccggcagccc cggccgggag aaaagctttg cgaacatccc agtgacg 47

<210> 138  
 <211> 44

<212> DNA  
<213> Mycobacterium tuberculosis

<400> 138  
gttcgcaaag cttttctccc ggccggggct gccggtcgag tacc 44

<210> 139  
<211> 20  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 139  
ccttcggtgg atcccgtcag 20

<210> 140  
<211> 450  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 140  
tggcgctgtc accgaggaac ctgtcaatgt cgtcgagcag tactgaaccg ttccgagaaa 60  
ggccagcatg aacgtcaccg tatccattcc gaccatcctg cggccccaca ccggcggcca 120  
gaagagtgtc tcggccagcg gcgatacctt gggtgccgtc atcagcgacc tggaggccaa 180  
ctattcgggc atttccgagc gcctgatgga cccgtcttcc ccaggtaagt tgcaccgctt 240  
cgtgaacatc tacgtcaacg acgaggacgt gcggttctcc ggcggttgg ccaccgcgat 300  
cgctgacggt gactcgtca ccacctccc cgccgtggcc ggtgggtgag cggagcacat 360  
gacacgatac gactcgtgt tgcaggcctt gggcaacacg ccgctggttg gcctgcagcg 420  
attgtcgcca cgctgggatg acgggcgaga 450

<210> 141  
<211> 93  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 141  
Met Asn Val Thr Val Ser Ile Pro Thr Ile Leu Arg Pro His Thr Gly  
1 5 10 15  
Gly Gln Lys Ser Val Ser Ala Ser Gly Asp Thr Leu Gly Ala Val Ile  
20 25 30  
Ser Asp Leu Glu Ala Asn Tyr Ser Gly Ile Ser Glu Arg Leu Met Asp  
35 40 45  
Pro Ser Ser Pro Gly Lys Leu His Arg Phe Val Asn Ile Tyr Val Asn  
50 55 60  
Asp Glu Asp Val Arg Phe Ser Gly Gly Leu Ala Thr Ala Ile Ala Asp  
65 70 75 80  
Gly Asp Ser Val Thr Ile Leu Pro Ala Val Ala Gly Gly  
85 90

<210> 142  
<211> 480  
<212> DNA

<213> Mycobacterium tuberculosis

<400> 142

```
ggtgttcccg cggccgggcta tgacaacagt caatgtgcat gacaagttac aggtattagg 60
tccaggttca acaaggagac aggcaacatg gcaacacgtt ttatgacgga tccgcacgcg 120
atgcgggaca tggcggggccg ttttgagggt cacgcccaga cggaggaggga cgaggctcgc 180
cggatgtggg cgtccgcgca aaacatctcg ggcgcgggct ggagtggcat ggccgaggcg 240
acctcgctag acaccatggc ccagatgaat caggcgtttc gcaacatcgt gaacatgctg 300
cacgggggtg gtgacgggct ggttcgcgac gccaacaact acgagcagca agagcaggcc 360
tcccagcaga tcctcagcag ctaacgtcag ccgctgcagc acaatacttt tacaagcgaa 420
ggagaacagg ttcgatgacc atcaactatc agttcggtga tgctgacgct catggcgcca 480
```

<210> 143

<211> 98

<212> PRT

<213> Mycobacterium tuberculosis

<400> 143

```
Met Ala Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala
  1              5              10             15

Gly Arg Phe Glu Val His Ala Gln Thr Val Glu Asp Glu Ala Arg Arg
      20              25             30

Met Trp Ala Ser Ala Gln Asn Ile Ser Gly Ala Gly Trp Ser Gly Met
      35              40             45

Ala Glu Ala Thr Ser Leu Asp Thr Met Ala Gln Met Asn Gln Ala Phe
      50              55             60

Arg Asn Ile Val Asn Met Leu His Gly Val Arg Asp Gly Leu Val Arg
      65              70             75             80

Asp Ala Asn Asn Tyr Glu Gln Gln Glu Gln Ala Ser Gln Gln Ile Leu
      85              90             95

Ser Ser
```

<210> 144

<211> 940

<212> DNA

<213> Mycobacterium tuberculosis

<400> 144

```
gccccagtcc tcgatcgctt catcgcttcc accggccgcc agccgaccgc aggccacgtg 60
tccgccacct aacgaaagga tgatcatgcc caagagaagc gaatacaggc aaggcacgcc 120
gaactgggtc gaccttcaga ccaccgatca gtccgccgcc aaaaagttct acacatcggt 180
gttcggctgg ggttacgacg acaaccgggt ccccgagggc ggtgggggtct attccatggc 240
cacgctgaac ggcgaagccg tggccgccat cgcaccgatg ccccggggtg caccggaggg 300
gatgccgccg atctggaaca cctatatcgc ggtggacgac gtcgatgcgg tgggtggaaa 360
ggtggtgccc gggggcgggc aggtgatgat gccggccttc gacatcggcg atgccggccg 420
gatgtcgctt atcaccgatc cgaccggcgc tgccgtgggc ctatggcagg ccaatcggca 480
catcggagcg acgttggtca acgagacggg cacgctcatc tggaacgaac tgctcacgga 540
caagccggat ttggcgctag cgttctacga ggctgtggtt ggcctcaccc actcgagcat 600
ggagatagct gcggggccaga actatcgggt gctcaaggcc ggcgacgcgg aagtcggcgg 660
```

```

ctgtatggaa cgcgcgatgc ccggcgtgcc gaatcattgg cacgtctact ttgcggtgga 720
tgacgccgac gccacggcgg ccaaagccgc cgcagcgggc ggccagggtca ttgcggaacc 780
ggctgacatt ccgtcgggtg gccgggttcgc cgtgttgtcc gatccgcagg gcgcgatctt 840
cagtgtgttg aagcccgcac cgcagcaata gggagcatcc cgggcaggcc cgccggccgg 900
cagattcgga gaatgctaga agctgccgcc ggcgcgcccg 940

```

<210> 145

<211> 261

<212> PRT

<213> Mycobacterium tuberculosis

<400> 145

```

Met Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp
  1             5             10             15

Leu Gln Thr Thr Asp Gln Ser Ala Ala Lys Lys Phe Tyr Thr Ser Leu
      20             25             30

Phe Gly Trp Gly Tyr Asp Asp Asn Pro Val Pro Gly Gly Gly Gly Val
      35             40             45

Tyr Ser Met Ala Thr Leu Asn Gly Glu Ala Val Ala Ala Ile Ala Pro
      50             55             60

Met Pro Pro Gly Ala Pro Glu Gly Met Pro Pro Ile Trp Asn Thr Tyr
      65             70             75             80

Ile Ala Val Asp Asp Val Asp Ala Val Val Asp Lys Val Val Pro Gly
      85             90             95

Gly Gly Gln Val Met Met Pro Ala Phe Asp Ile Gly Asp Ala Gly Arg
      100            105            110

Met Ser Phe Ile Thr Asp Pro Thr Gly Ala Ala Val Gly Leu Trp Gln
      115            120            125

Ala Asn Arg His Ile Gly Ala Thr Leu Val Asn Glu Thr Gly Thr Leu
      130            135            140

Ile Trp Asn Glu Leu Leu Thr Asp Lys Pro Asp Leu Ala Leu Ala Phe
      145            150            155            160

Tyr Glu Ala Val Val Gly Leu Thr His Ser Ser Met Glu Ile Ala Ala
      165            170            175

Gly Gln Asn Tyr Arg Val Leu Lys Ala Gly Asp Ala Glu Val Gly Gly
      180            185            190

Cys Met Glu Pro Pro Met Pro Gly Val Pro Asn His Trp His Val Tyr
      195            200            205

Phe Ala Val Asp Asp Ala Asp Ala Thr Ala Ala Lys Ala Ala Ala Ala
      210            215            220

Gly Gly Gln Val Ile Ala Glu Pro Ala Asp Ile Pro Ser Val Gly Arg
      225            230            235            240

```

Phe Ala Val Leu Ser Asp Pro Gln Gly Ala Ile Phe Ser Val Leu Lys  
245 250 255

Pro Ala Pro Gln Gln  
260

<210> 146

<211> 280

<212> DNA

<213> Mycobacterium tuberculosis

<400> 146

ccgaaaggcg gtgcaccgca cccagaagaa aaggaaagat cgagaaatgc cacagggaac 60  
tgtgaagtgg ttcaacgcgg agaaggggtt cggtttatc gccccgaag acggttccgc 120  
ggatgtattt gtccactaca cggagatcca gggaacgggc ttccgcaccc ttgaagaaaa 180  
ccagaaggtc gagttcgaga tcggccacag ccctaagggc cccaggcca ccggagtccg 240  
ctcgctctga gttacccccg cgagcagacg caaaaagccc 280

<210> 147

<211> 67

<212> PRT

<213> Mycobacterium tuberculosis

<400> 147

Met Pro Gln Gly Thr Val Lys Trp Phe Asn Ala Glu Lys Gly Phe Gly  
1 5 10 15

Phe Ile Ala Pro Glu Asp Gly Ser Ala Asp Val Phe Val His Tyr Thr  
20 25 30

Glu Ile Gln Gly Thr Gly Phe Arg Thr Leu Glu Glu Asn Gln Lys Val  
35 40 45

Glu Phe Glu Ile Gly His Ser Pro Lys Gly Pro Gln Ala Thr Gly Val  
50 55 60

Arg Ser Leu  
65

<210> 148

<211> 540

<212> DNA

<213> Mycobacterium tuberculosis

<400> 148

atcgtgtcgt atcgagaacc ccggccggta tcagaacgcg ccagagcgca aacctttata 60  
acttcgtgtc ccaaatgtga cgaccatgga ccaaggttcc tgagatgaac ctacggcgcc 120  
atcagaccct gacgtgcga ctgctggcgg catccgcggg cattctcagc gccgcggcct 180  
tcgccgcgcc agcacaggca aaccccgctc acgacgcgtt catcgccgcg ctgaacaatg 240  
ccggcgtaaa ctacggcgat ccggtcgacg ccaaagcgct gggtcagtcc gtctgcccga 300  
tcctggccga gcccggcggg tcgtttaaca ccgcggtagc cagcgttggt gcgcgcgccc 360  
aaggcatgtc ccaggacatg gcgcaaacct tcaccagtat cgcgatttcg atgtactgcc 420  
cctcggtgat ggcagacgtc gccagcggca acctgccggc cctgccagac atgccggggc 480  
tgcccgggtc ctaggcgtgc gcggctccta gccggtccct aacggatcga tcgtggatgc 540

<210> 149  
 <211> 129  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 149  
 Met Asn Leu Arg Arg His Gln Thr Leu Thr Leu Arg Leu Leu Ala Ala  
   1                  5                  10                  15  
 Ser Ala Gly Ile Leu Ser Ala Ala Ala Phe Ala Ala Pro Ala Gln Ala  
           20                  25                  30  
 Asn Pro Val Asp Asp Ala Phe Ile Ala Ala Leu Asn Asn Ala Gly Val  
           35                  40                  45  
 Asn Tyr Gly Asp Pro Val Asp Ala Lys Ala Leu Gly Gln Ser Val Cys  
       50                  55                  60  
 Pro Ile Leu Ala Glu Pro Gly Gly Ser Phe Asn Thr Ala Val Ala Ser  
   65                  70                  75                  80  
 Val Val Ala Arg Ala Gln Gly Met Ser Gln Asp Met Ala Gln Thr Phe  
                   85                  90                  95  
 Thr Ser Ile Ala Ile Ser Met Tyr Cys Pro Ser Val Met Ala Asp Val  
           100                  105                  110  
 Ala Ser Gly Asn Leu Pro Ala Leu Pro Asp Met Pro Gly Leu Pro Gly  
       115                  120                  125  
 Ser

<210> 150  
 <211> 400  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 150  
 atagtttggg gaaggtgtcc ataaatgagg ctgtcgttga ccgcattgag cgccggtgta 60  
 ggcgccgtgg caatgtcgtt gaccgtcggg gccggggtcg cctccgcaga tcccgtggac 120  
 gcggtcatta acaccacctg caattacggg caggtagtag ctgcgtcaa cgcgacggat 180  
 ccgggggctg ccgcacagtt caacgcctca ccggtggcgc agtcctattt gcgcaatttc 240  
 ctgcgcgac cgccacctca gcgcgctgcc atggccgcgc aattgcaagc tgtgccgggg 300  
 gcggcacagt acatcggcct tgtcgagtcg gttgccggct cctgcaacaa ctattaagcc 360  
 catgcggggc ccatcccgcg acccggcatc gtcgccgggg 400

<210> 151  
 <211> 110  
 <212> PRT  
 <213> Mycobacterium tuberculosis

<400> 151  
 Met Arg Leu Ser Leu Thr Ala Leu Ser Ala Gly Val Gly Ala Val Ala  
   1                  5                  10                  15



Met Ser Leu Thr Val Gly Ala Gly Val Ala Ser Ala Asp Pro Val Asp  
20 25 30

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu  
35 40 45

Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val  
50 55 60

Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg  
65 70 75 80

Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr  
85 90 95

Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr  
100 105 110

<210> 152

<211> 990

<212> DNA

<213> Mycobacterium tuberculosis

<400> 152

aatagtaata tcgctgtgcg gttgcaaaac gtgtgaccga gggtccgcag tcgagcgctg 60  
cgggccgcct tcgaggagga cgaaccacag tcatgacgaa catcgtggtc ctgatcaagc 120  
aggtcccaga tacctggtcg gagcgcaagc tgaccgacgg cgatttcacg ctggaccgcg 180  
aggccgccga cgcggtgctg gacgagatca acgagcgcg cgtggaggaa gcgctacaga 240  
ttcgggagaa agaggccgcc gacggcatcg aagggtcggt aaccgtgctg acggcgggcc 300  
ccgagcgcg caccgaggcg atccgcaagg cgctgtcgat gggtgccgac aaggccgtcc 360  
acctaaagga cgacggcatg cacggctcgg acgtcatcca aaccgggtgg gctttggcgc 420  
gcgcgttggg caccatcgag ggcaccgagc tggatgatcg aggcaacgaa tcgaccgacg 480  
gggtgggcgg tgcggtgccg gccatcatcg ccgagtacct gggcctgccg cagctcacc 540  
acctgcgcaa agtgtcgatc gagggcggca agatcaccgg cgagcgtgag accgatgagg 600  
gcgtattcac cctcgaggcc acgtgcccgc cggtgatcag cgtgaacgag aagatcaacg 660  
agccgcgctt cccgtccttc aaaggcatca tggccgcaa gaagaaggaa gttaccgtgc 720  
tgacctggc cgagatcggg gtcgagagcg acgaggtggg gctggccaac gccggatcca 780  
ccgtgtggc gtcgacgccc aaaccggcca agactgccgg ggagaaggtc accgacgagg 840  
gtgaaggcgg caaccagatc gtgcagtacc tggttgccc gaaaatcatc taagacatac 900  
gcacctcca aagacgagag cgatataacc catggctgaa gtactgggtg tcgttgagca 960  
cgctgaaggc gcgttaaaga aggtcagcgc 990

<210> 153

<211> 266

<212> PRT

<213> Mycobacterium tuberculosis

<400> 153

Met Thr Asn Ile Val Val Leu Ile Lys Gln Val Pro Asp Thr Trp Ser  
1 5 10 15

Glu Arg Lys Leu Thr Asp Gly Asp Phe Thr Leu Asp Arg Glu Ala Ala  
20 25 30

Asp Ala Val Leu Asp Glu Ile Asn Glu Arg Ala Val Glu Glu Ala Leu  
35 40 45

Gln Ile Arg Glu Lys Glu Ala Ala Asp Gly Ile Glu Gly Ser Val Thr  
 50 55 60  
 Val Leu Thr Ala Gly Pro Glu Arg Ala Thr Glu Ala Ile Arg Lys Ala  
 65 70 75 80  
 Leu Ser Met Gly Ala Asp Lys Ala Val His Leu Lys Asp Asp Gly Met  
 85 90 95  
 His Gly Ser Asp Val Ile Gln Thr Gly Trp Ala Leu Ala Arg Ala Leu  
 100 105 110  
 Gly Thr Ile Glu Gly Thr Glu Leu Val Ile Ala Gly Asn Glu Ser Thr  
 115 120 125  
 Asp Gly Val Gly Gly Ala Val Pro Ala Ile Ile Ala Glu Tyr Leu Gly  
 130 135 140  
 Leu Pro Gln Leu Thr His Leu Arg Lys Val Ser Ile Glu Gly Gly Lys  
 145 150 155 160  
 Ile Thr Gly Glu Arg Glu Thr Asp Glu Gly Val Phe Thr Leu Glu Ala  
 165 170 175  
 Thr Leu Pro Ala Val Ile Ser Val Asn Glu Lys Ile Asn Glu Pro Arg  
 180 185 190  
 Phe Pro Ser Phe Lys Gly Ile Met Ala Ala Lys Lys Lys Glu Val Thr  
 195 200 205  
 Val Leu Thr Leu Ala Glu Ile Gly Val Glu Ser Asp Glu Val Gly Leu  
 210 215 220  
 Ala Asn Ala Gly Ser Thr Val Leu Ala Ser Thr Pro Lys Pro Ala Lys  
 225 230 235 240  
 Thr Ala Gly Glu Lys Val Thr Asp Glu Gly Glu Gly Gly Asn Gln Ile  
 245 250 255  
 Val Gln Tyr Leu Val Ala Gln Lys Ile Ile  
 260 265

<210> 154  
 <211> 25  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 154  
 ctgagatcta tgaacctacg gcgcc

25

<210> 155  
 <211> 35  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 155 ctccccatggt accctaggac ccgggcagcc ccggc	35
<210> 156 <211> 29 <212> DNA <213> Mycobacterium tuberculosis	
<400> 156 ctgagatcta tgaggctgtc gttgaccgc	29
<210> 157 <211> 30 <212> DNA <213> Mycobacterium tuberculosis	
<400> 157 ctccccgggc ttaatagttg ttgcaggagc	30
<210> 158 <211> 33 <212> DNA <213> Mycobacterium tuberculosis	
<400> 158 gcttagatct atgattttct gggcaaccag gta	33
<210> 159 <211> 30 <212> DNA <213> Mycobacterium tuberculosis	
<400> 159 gcttccatgg gcgaggcaca ggcgtgggaa	30
<210> 160 <211> 30 <212> DNA <213> Mycobacterium tuberculosis	
<400> 160 ctgagatcta gaatgccaca gggaactgtg	30
<210> 161 <211> 30 <212> DNA <213> Mycobacterium tuberculosis	
<400> 161 tctccccggg gtaactcaga gcgagcggac	30
<210> 162 <211> 27 <212> DNA <213> Mycobacterium tuberculosis	
<400> 162	

ctgagatcta tgaacgtcac cgtatcc 27

<210> 163

<211> 27

<212> DNA

<213> Mycobacterium tuberculosis

<400> 163

tctcccgggg ctcacccacc ggccacg 27

<210> 164

<211> 30

<212> DNA

<213> Mycobacterium tuberculosis

<400> 164

ctgagatcta tggcaacacg ttttatgacg 30

<210> 165

<211> 30

<212> DNA

<213> Mycobacterium tuberculosis

<400> 165

ctccccgggt tagctgctga ggatctgcth 30

<210> 166

<211> 31

<212> DNA

<213> Mycobacterium tuberculosis

<400> 166

ctgaagatct atgcccaaga gaagcgaata c 31

<210> 167

<211> 31

<212> DNA

<213> Mycobacterium tuberculosis

<400> 167

cggcagctgc tagcattctc cgaatctgcc g 31

<210> 168

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<400> 168

Pro Gln Gly Thr Val Lys Trp Phe Asn Ala Glu Lys Gly Phe Gly

1

5

10

15

<210> 169

<211> 15

<212> PRT

<213> Mycobacterium tuberculosis

<220>  
<221> UNSURE  
<222> (15)  
<223> Xaa is unknown

<400> 169  
Asn Val Thr Val Ser Ile Pro Thr Ile Leu Arg Pro Xaa Xaa Xaa  
1 5 10 15

<210> 170  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<220>  
<221> VARIANT  
<222> (1)  
<223> Thr could also be Ala

<400> 170  
Thr Arg Phe Met Thr Asp Pro His Ala Met Arg Asp Met Ala Gly  
1 5 10 15

<210> 171  
<211> 15  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 171  
Pro Lys Arg Ser Glu Tyr Arg Gln Gly Thr Pro Asn Trp Val Asp  
1 5 10 15

<210> 172  
<211> 404  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 172  
Met Ala Thr Val Asn Arg Ser Arg His His His His His His His  
1 5 10 15

Ile Glu Gly Arg Ser Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu  
20 25 30

Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln  
35 40 45

Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg  
50 55 60

Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe Glu  
65 70 75 80

Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln

85										90					95						
Ser	Ser	Phe	Tyr	Ser	Asp	Trp	Tyr	Ser	Pro	Ala	Cys	Gly	Lys	Ala	Gly						
			100					105					110								
Cys	Gln	Thr	Tyr	Lys	Trp	Glu	Thr	Phe	Leu	Thr	Ser	Glu	Leu	Pro	Gln						
		115					120					125									
Trp	Leu	Ser	Ala	Asn	Arg	Ala	Val	Lys	Pro	Thr	Gly	Ser	Ala	Ala	Ile						
						135					140										
Gly	Leu	Ser	Met	Ala	Gly	Ser	Ser	Ala	Met	Ile	Leu	Ala	Ala	Tyr	His						
145					150					155					160						
Pro	Gln	Gln	Phe	Ile	Tyr	Ala	Gly	Ser	Leu	Ser	Ala	Leu	Leu	Asp	Pro						
				165					170					175							
Ser	Gln	Gly	Met	Gly	Pro	Ser	Leu	Ile	Gly	Leu	Ala	Met	Gly	Asp	Ala						
			180					185					190								
Gly	Gly	Tyr	Lys	Ala	Ala	Asp	Met	Trp	Gly	Pro	Ser	Ser	Asp	Pro	Ala						
		195					200					205									
Trp	Glu	Arg	Asn	Asp	Pro	Thr	Gln	Gln	Ile	Pro	Lys	Leu	Val	Ala	Asn						
	210					215					220										
Asn	Thr	Arg	Leu	Trp	Val	Tyr	Cys	Gly	Asn	Gly	Thr	Pro	Asn	Glu	Leu						
225					230					235					240						
Gly	Gly	Ala	Asn	Ile	Pro	Ala	Glu	Phe	Leu	Glu	Asn	Phe	Val	Arg	Ser						
			245						250					255							
Ser	Asn	Leu	Lys	Phe	Gln	Asp	Ala	Tyr	Asn	Ala	Ala	Gly	Gly	His	Asn						
			260					265					270								
Ala	Val	Phe	Asn	Phe	Pro	Pro	Asn	Gly	Thr	His	Ser	Trp	Glu	Tyr	Trp						
		275					280					285									
Gly	Ala	Gln	Leu	Asn	Ala	Met	Lys	Gly	Asp	Leu	Gln	Ser	Ser	Leu	Gly						
	290					295					300										
Ala	Gly	Lys	Leu	Ala	Met	Thr	Glu	Gln	Gln	Trp	Asn	Phe	Ala	Gly	Ile						
305					310					315					320						
Glu	Ala	Ala	Ala	Ser	Ala	Ile	Gln	Gly	Asn	Val	Thr	Ser	Ile	His	Ser						
				325					330					335							
Leu	Leu	Asp	Glu	Gly	Lys	Gln	Ser	Leu	Thr	Lys	Leu	Ala	Ala	Ala	Trp						
			340					345					350								
Gly	Gly	Ser	Gly	Ser	Glu	Ala	Tyr	Gln	Gly	Val	Gln	Gln	Lys	Trp	Asp						
		355					360					365									
Ala	Thr	Ala	Thr	Glu	Leu	Asn	Asn	Ala	Leu	Gln	Asn	Leu	Ala	Arg	Thr						
	370					375					380										
Ile	Ser	Glu	Ala	Gly	Gln	Ala	Met	Ala	Ser	Thr	Glu	Gly	Asn	Val	Thr						

385	390										395					400				
Gly Met Phe Ala																				
<210> 173																				
<211> 403																				
<212> PRT																				
<213> Mycobacterium tuberculosis																				
<400> 173																				
Met	Ala	Thr	Val	Asn	Arg	Ser	Arg	His	His	His	His	His	His	His	His	His	His	His	His	
1				5					10							15				
Ile	Glu	Gly	Arg	Ser	Met	Thr	Glu	Gln	Gln	Trp	Asn	Phe	Ala	Gly	Ile					
			20					25					30							
Glu	Ala	Ala	Ala	Ser	Ala	Ile	Gln	Gly	Asn	Val	Thr	Ser	Ile	His	Ser					
			35				40					45								
Leu	Leu	Asp	Glu	Gly	Lys	Gln	Ser	Leu	Thr	Lys	Leu	Ala	Ala	Ala	Ala	Trp				
	50					55					60									
Gly	Gly	Ser	Gly	Ser	Glu	Ala	Tyr	Gln	Gly	Val	Gln	Gln	Lys	Trp	Asp					
65					70					75					80					
Ala	Thr	Ala	Thr	Glu	Leu	Asn	Asn	Ala	Leu	Gln	Asn	Leu	Ala	Arg	Thr					
				85					90					95						
Ile	Ser	Glu	Ala	Gly	Gln	Ala	Met	Ala	Ser	Thr	Glu	Gly	Asn	Val	Thr					
			100					105					110							
Gly	Met	Phe	Ala	Lys	Leu	Phe	Ser	Arg	Pro	Gly	Leu	Pro	Val	Glu	Tyr					
		115					120					125								
Leu	Gln	Val	Pro	Ser	Pro	Ser	Met	Gly	Arg	Asp	Ile	Lys	Val	Gln	Phe					
	130					135					140									
Gln	Ser	Gly	Gly	Asn	Asn	Ser	Pro	Ala	Val	Tyr	Leu	Leu	Asp	Gly	Leu					
145				150						155					160					
Arg	Ala	Gln	Asp	Asp	Tyr	Asn	Gly	Trp	Asp	Ile	Asn	Thr	Pro	Ala	Phe					
				165					170					175						
Glu	Trp	Tyr	Tyr	Gln	Ser	Gly	Leu	Ser	Ile	Val	Met	Pro	Val	Gly	Gly					
			180					185					190							
Gln	Ser	Ser	Phe	Tyr	Ser	Asp	Trp	Tyr	Ser	Pro	Ala	Cys	Gly	Lys	Ala					
		195					200					205								
Gly	Cys	Gln	Thr	Tyr	Lys	Trp	Glu	Thr	Phe	Leu	Thr	Ser	Glu	Leu	Pro					
	210					215						220								
Gln	Trp	Leu	Ser	Ala	Asn	Arg	Ala	Val	Lys	Pro	Thr	Gly	Ser	Ala	Ala					
225					230					235					240					

Ile	Gly	Leu	Ser	Met	Ala	Gly	Ser	Ser	Ala	Met	Ile	Leu	Ala	Ala	Tyr	245	250	255
His	Pro	Gln	Gln	Phe	Ile	Tyr	Ala	Gly	Ser	Leu	Ser	Ala	Leu	Leu	Asp	260	265	270
Pro	Ser	Gln	Gly	Met	Gly	Pro	Ser	Leu	Ile	Gly	Leu	Ala	Met	Gly	Asp	275	280	285
Ala	Gly	Gly	Tyr	Lys	Ala	Ala	Asp	Met	Trp	Gly	Pro	Ser	Ser	Asp	Pro	290	295	300
Ala	Trp	Glu	Arg	Asn	Asp	Pro	Thr	Gln	Gln	Ile	Pro	Lys	Leu	Val	Ala	305	310	315
Asn	Asn	Thr	Arg	Leu	Trp	Val	Tyr	Cys	Gly	Asn	Gly	Thr	Pro	Asn	Glu	325	330	335
Leu	Gly	Gly	Ala	Asn	Ile	Pro	Ala	Glu	Phe	Leu	Glu	Asn	Phe	Val	Arg	340	345	350
Ser	Ser	Asn	Leu	Lys	Phe	Gln	Asp	Ala	Tyr	Asn	Ala	Ala	Gly	Gly	His	355	360	365
Asn	Ala	Val	Phe	Asn	Phe	Pro	Pro	Asn	Gly	Thr	His	Ser	Trp	Glu	Tyr	370	375	380
Trp	Gly	Ala	Gln	Leu	Asn	Ala	Met	Lys	Gly	Asp	Leu	Gln	Ser	Ser	Leu	385	390	395
Gly	Ala	Gly																